Regional Congress of Actuaries in Africa

2nd - 4th November 2011
Crowne Plaza Hotel, Nairobi - Kenya

Theme
“The Challenges Facing the Actuarial Profession in Africa”
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Second Regional Congress of Actuaries in Africa

THE CHALLENGES FACING THE ACTUARIAL PROFESSION IN AFRICA

Wednesday 2 November to Friday 4 November 2011
Crowne Plaza Hotel, Nairobi, Kenya

On 2-4 November The Actuarial Society of Kenya (TASK) hosted the Second Regional Congress of Actuaries at the Crowne Plaza Hotel in Nairobi. The meeting was supported by the IAA Fund and the Africa Sub-committee of the IAA’s Advice and Assistance Committee. The First African Regional Congress had been held in Abidjan, Ivory Coast in June 2009.

Participants in the meeting were from Kenya, Tanzania, Uganda, Mozambique, Sudan, Nigeria, Benin, Togo, Ghana, Algeria and South Africa. The IAA Fund provided bursaries for eighteen participants coming from 7 other countries in the region. A total of [100] people attended, with [60] of them being from Kenya.

The meeting was opened by the Chairman of TASK, followed by a keynote address by the Commissioner of Insurance for Kenya, Mr Sammy Makove, who emphasized the importance of the development of the actuarial profession for a healthy insurance industry. Speakers on professional topics and actuarial education included Desmond Smith, President-elect of the IAA; Chris Daykin, Chief Executive of the IAA Fund; Giovanna Ferrara, Chairman of the Africa Sub-committee; Thierry Poincelin (France), Renata de Leers (Togo) and Sundeep Raichura (Kenya) from the Africa Sub-committee; Francisca Venter (South Africa), Professor Patrick Weke (Kenya), Themba Gamedze, President-elect of the Actuarial Society of South Africa and Lusani Mulaudzi, President of the Association of South African Black Actuarial Professionals.

There were presentations on the actuarial profession in Kenya, Ghana and Nigeria and more technical presentations on embedded values for life insurers, developing mortality tables for Kenya, risk-based capital for African life insurers and investment of insurance funds in Africa. Workshop sessions discussed actuarial education in Africa, the actuary and regulation and the possibility of cooperation between the African actuarial associations and the IAA and other actuarial associations present internationally.

The meeting concluded with dinner and dancing at the Carnivore Restaurant and on the Saturday morning some of the guests from outside Kenya were taken on a game ride to the Nairobi National Park.

The cost of bursaries from the IAA Fund was USD 12,450 for travel expenses and USD 6,800 for accommodation costs. The total cost to the IAA Fund is expected to be around USD 20,000. Bursaries were awarded as follows:

<table>
<thead>
<tr>
<th>Country</th>
<th>No of bursary recipients</th>
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<tbody>
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<td>Algeria</td>
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</tr>
<tr>
<td>Benin</td>
<td>1</td>
</tr>
<tr>
<td>Ghana</td>
<td>7</td>
</tr>
<tr>
<td>Mozambique</td>
<td>3</td>
</tr>
<tr>
<td>Sudan</td>
<td>1</td>
</tr>
<tr>
<td>Tanzania</td>
<td>2</td>
</tr>
<tr>
<td>Uganda</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>
The presentations, and summaries of the conclusions from the workshops, have been posted on the website under IAA Fund and Africa meetings, with links also from the Africa Sub-committee website. The final programme is given below.

Sincere thanks are due to The Actuarial Society of Kenya for hosting the meeting and for the support provided, and gratefully acknowledges the financial support of the sponsor, Alexander Forbes

Chris Daykin
Chief Executive, IAA Fund
5th November 2011
1. An Introduction to the IAA; By Desmond Smith, President-Elect

1.1 Origins, mission and recognition

The International Actuarial Association (IAA) was founded in 1895, restructured in 1998 to serve as worldwide association of professional actuarial associations. To encourage development of global profession by ensuring that actuaries are technically competent and professionally reliable and that the public interest is served.

1.2 Not-for-profit, non-political, Non-Governmental Organisation

The IAA is on the Roster of the Economic and Social Council of the UN and on the Special List of the ILO

1.3 Principle of Subsidiarity (Article 8 Co-operation)

The IAA operates on the Principle of Subsidiarity which restricts its activities to strategies and programmes which require international co-ordination or direction. It also ensures that the IAA does not become involved with actions at national level, except at express invitation of actuarial association or groups and it sees to it that there is no duplication or overlap with activities of Member Associations or regional groups of actuarial associations.

1.4 Membership and Representation

Membership is broken down as follows:

- Full Member Associations: 63
- Associate Member Associations: 26
- Assisting development of profession in: 30 additional countries
- Fully qualified actuaries: 60,000+ in more than 100 countries

1.4.1 Institutional Members:

- International Association of Insurance Supervisors (IAIS)
- International Accounting Standards Board (IASB)
- International Social Security Association (ISSA)
- International Organization of Pension Supervisors (IOPS)
- Organization for Economic Cooperation and Development (OECD)

1.4.2 Observer Member:

- Asian Development Bank (ADB)

1.5 Strategic Plan

The IAA has five strategic objectives:

- Relationships with key supranational audiences
- Expansion of scientific knowledge to wider fields to enhance the scope, quality, and availability of actuarial services
- Common standards of actuarial education and principles of professional conduct as well as guidance for actuarial practice; promote development and issuance of actuarial standards in jurisdictions of Full Member associations, and the global convergence of actuarial standards
- Support the development, organization, and promotion of the actuarial profession
- Provide a forum for discussion
1.6 IAA Membership Requirements

1.6.1 For Full Member Association
- Code of Conduct
- Formal discipline process
- IAA Education Guidelines and Syllabus
- Formal process to adopt standards of practice, if and when national standards are created.

1.6.2 For Associate Member Association
- Actuarial associations not meeting all conditions above
- IAA Officers 2011

1.7 Organisational Structure of the IAA

![Organisational Chart]

International Actuarial Association / Association Actuarielle Internationale
601 - 150 Metcalfe, Ottawa, Ontario K2P 1P1 Canada
+1-613-236-0886 +1-613-236-1386 www.actuaries.org secretariat@actuaries.org
1.8 **IAA Officers 2011**

- President: Cecil Bykerk (United States)
- Secretary General: Jean-Louis Massé (Canada)
- President-Elect: Desmond Smith (South Africa)
- Immediate Past President: Paul Thornton (United Kingdom)
- Kurt Wolfsdorf (Germany): Elected President Elect for 2012

1.9 **Committees and Sections**

The committees and sections include Full Member associations, appointed representatives to IAA committees which:

a) serve the profession
b) propose standards
c) define syllabus and education requirements
d) prepare briefs and public statements for regulatory bodies (IAIS, IASB, OECD, etc.)

Committees and Sections create their own subcommittees and task forces whose members are individuals with an interest or expertise in the subject.

1.10 **Sections**

In the year 2011, all Section dues are $50 CAD per individual

a) **ASTIN:** Actuarial Studies in Non-Life Insurance (1957)
b) **AFIR/ERM:** Actuarial Approach for Financial Risks (1988); expanded in June to include Enterprise Risk Management
c) **IACA:** International Association of Consulting Actuaries (1968); became a section of IAA in 1999
d) **IAAHS:** IAA Health Section (2003)
e) **PBSS:** Pensions, Benefits, Social Security Section (2003)
f) **AWB:** Actuaries Without Frontiers (2003); renamed Actuaries Without Borders in 2009
g) **LIFE:** Life Section (2005)

The IAA is encouraging all actuaries to join at least one of the said Sections.

1.11 **Relationship between IAA, Sections and Congresses**

The IAA relationship with Sections and Congresses can be summarised as follows:

a) association driven, focusing on professionalism, standards, representation
b) Sections: scientific, research and practical arm
c) Congresses: a high point for both
d) Section Colloquia: yearly or biennially
e) Congresses: every 4 years
   Next Congresses: March-April 2014 (Washington, DC – USA); 2018 (Berlin, Germany)
1.12 Communication and Tools for Members

a) Communication is electronic: List servers
b) Quarterly Newsletters; Special Newsletter after each meeting
c) News releases to external audiences to inform of important IAA initiatives
d) Committee delegates and interested persons can join various list servers to participate / monitor work of committees.
2. IAA and the Education of Actuaries: By Christopher Daykin, Chief Executive, IAA Fund

2.1 Core Syllabus and Guidelines

IAA has adopted core syllabus and guidelines as a requirement for Full Member status. All associations applying are tested against this requirement to become Full Member Association of the IAA.

Full Member Associations may require more but not less revised syllabus approved by IAA Council in April 2007:


2.2 IAA Core Syllabus

2.2.1 Ten subject areas are:

- a) Financial Mathematics
- b) Probability and Mathematical Statistics
- c) Economics
- d) Accounting
- e) Modelling
- f) Statistical Methods
- g) Actuarial Mathematics
- h) Investment and Asset Analysis
- i) Actuarial Risk Management
- j) Professionalism

2.2.2 Principal changes in April 2007

- a) Financial Mathematics (Updated and Modernised)
- b) Probability and Mathematical Statistics (No Change)
- c) Economics (No Change)
- d) Accounting (No Change)
- e) Modelling (Expanded)
- f) Statistical Methods (Expanded)
- g) Actuarial Mathematics (Completely Rewritten and Expanded)
- h) Investment And Asset Analysis (Expanded and New Title)
- i) Actuarial Risk Management (Rewritten and New Title)
- j) Professionalism (Greatly Expanded)
- k) Actuarial Mathematics (Completely Rewritten and Expanded)
- l) Nature of events giving rise to a contingency
- m) Typical solutions offered by insurance, social insurance, etc
- n) Actuarial methods for evaluating the prospective cost of solutions
- o) Actuarial methods for monitoring the results and maintaining financial stability, such as:
  - reserving
  - financial reporting
  - reinsuring
  - profitability analysis
  - financial condition analysis
- p) Actuarial risk management (rewritten and new title)
- q) Risk types and risk measures
r) Management of risks and methods of reducing exposure
s) Monitoring the experience and exposure to risk
t) Management of the relationships between assets and liabilities
u) Profitability of the enterprise and management of capital
v) Principles of regulation of financial institutions
w) Professionalism (greatly expanded)
x) Characteristics and standards of a profession, including need for:
   ▶ specialised skill and education
   ▶ ongoing training and development
   ▶ high quality of advice
   ▶ exercise of independent judgement
   ▶ objectivity, integrity and accountability

y) Code of conduct
z) Discipline process
aa) Practice standards set by actuarial bodies or other stakeholders
bb) Regulatory roles of actuaries
cc) The professional role of the actuary

2.2.3 Core Syllabus and Guidelines – changes in 2012

The Education Committee will submit revised syllabus and guidelines to IAA Council in May 2012. The main change to guidelines are:

a) Encouragement to provide training in communication skills
b) Both oral and written communication
c) The only recommended change to syllabus is: introduction of financial economics

2.3 Actuarial Examining Bodies

a) Institute and Faculty of Actuaries (UK based)
b) Society of Actuaries (North America based)
c) Casualty Actuarial Society (general insurance – US based)
d) Actuarial Society of South Africa
e) Institute of Actuaries of Australia
f) Institute of Actuaries of India
g) Institute of Actuaries of Japan
h) China Actuarial Association

2.4 Alternative approaches

a) Professional examinations
b) University education
c) University education plus some professional exams
d) Professional examinations with university accreditation
e) University education plus work experience plus thesis
f) Government-sponsored actuarial examinations
g) Recognition of qualifications obtained elsewhere

2.5 International Convergence based on IAA syllabus

a) strong convergence on Core Technical (subjects 1 to 7)
b) Joint Education Forum assists with coordination
   ▶ for anglophone examining bodies
c) Variations in investment and finance content
d) Different approaches to actuarial risk management

e) Need to strengthen professionalism education identified

2.6 Risk Management designations

a) Qualified actuary (e.g. FIA, AIA, FSA, ASA, FASSA)
b) Chartered enterprise risk actuary
c) Treaty signed by 14 founding associations including UKAP, SoA, CAS, ASSA, IAAust, IAI
d) Accreditation of treaty signatories to award cera
e) Intensive checking of compliance with syllabus
f) I&FA’s ST9 being used by several associations

2.7 Institute and Faculty Basic Education

2.7.1 Developments in I&FA actuarial education

a) Actuarial Risk Management replaced old CA1
b) Two-day assessment for communications (CA3)
c) Work-based skills replaced experience requirement
d) Associates can call themselves actuaries
e) ST7 and ST8 replaced old ST3 (general insurance)
f) ST9 in Enterprise Risk Management
g) CERA designation with most CTs, CAs and ST9
h) Experienced practitioner pathway for CERA
i) Online versions of CT9, CA2 and CA3

2.8 Society of Actuaries Basic Education

2.8.1 Developments in SoA actuarial education

a) Decision-making and Communication (DMAC) module
b) Financial Economics now multiple choice CBT
c) Trialling online test in Contingencies
d) Centres of Excellence awards for universities
e) Sittings twice a year for Fellowship subjects
f) Changes to Advanced Finance and ERM in July 2012
   » smoother pathway for gaining the CERA credential

2.9 Continuing Professional Development

Formally defined by the IAA as: The development of knowledge and of technical, personal, professional, business and management skills and competencies throughout a person’s working life. CPD guidelines approved by IAA Council on 2 October 2011

2.9.1 CPD and the Individual Actuary

CPD is an important element of the actuary’s lifelong process of learning and development within the profession. The initial qualification process is the first step in this journey. Thereafter, it is the responsibility of all actuaries to plan their own professional development program.
2.9.2 CPD and the Actuarial Association

All actuarial associations are encouraged to develop and implement a CPD strategy that supports the objectives outlined in section 1.2. Such a strategy should encourage or require actuaries to carry out CPD in order to maintain their competence, foster high quality in actuarial work and promote the reputation of the actuarial profession.

2.9.3 Categories of actuary in I&FA CPD Scheme

Now only two categories:

a) Category 1 – requiring UK practising certificates
b) Category 2 – members in paid work

2.9.4 CPD – Category : Requiring practising certificate

a) No fewer than 30 hours of verifiable activities, of which:
   - At least 20 hours should be technically relevant to the subject area of the PC, and at least 10 hours of that should be external
   - At least 6 hours must relate to professional skills
   - Up to 15 hours can be for “service to the Profession”

b) All PC holders are required to attend a Professionalism Event.
c) Reporting year runs from date of last PC renewal
d) Verifiable – member must be able to provide written evidence of participation if requested

2.9.5 CPD - Category 2: Members in paid work

a) Mixture of events (at least five hours) and private study e.g.

<table>
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<th>Hours at events</th>
<th>Hours’ private study</th>
<th>Total</th>
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<td>15</td>
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<tr>
<td>10</td>
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<td>9</td>
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<td>16</td>
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<td>5</td>
<td>15</td>
<td>20</td>
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b) Members must decide appropriate mix
c) Under events, members may count up to eight hours of “service to the Profession” relevant to work area
d) Must attend professionalism event every 10 years
e) All must be “verifiable”, at least one event to be external
f) CPD year is from 1 July to 30 June

2.9.6 CPD - Category 2: …. and there’s more

Exemptions will apply if members can show that:

a) Actuarial training, experience and membership does not contribute to paid work
For example, purely manual labour or performing arts; They have less than 20 hours’ paid employment annually.

Serious ill-health prevents compliance

b) Members abroad fully regulated by Profession may comply with local IAA-recognised CPD scheme

c) Partially regulated members comply with CPD scheme of association by which they are regulated.

2.9.7 CPD Scheme of the Institute and Faculty of Actuaries

a) Events

Any training or development involving interaction with others

Examples

- Attending sessional meetings, conferences, seminars
- Attending public, formal events
- Webinars or interactive web-based learning
- Delivering learning to colleagues

b) Professionalism Skills

Skills which are required whatever your role

- Knowledge of Actuaries’ Code
- Skills to ensure satisfactory outcome to boss/client
- Examples include business skills, management, staff development and IT.
- No longer a specific requirement for Category 2 (member decides)

2.10 International Actuarial Education Programme

2.10.1 IAA plans for International Actuarial Education

a) Dropped idea of International Actuarial Education Programme
b) Leverage existing education systems
c) Support initiatives where external funding is available
d) Formation of Actuarial Educators Network

2.10.2 Options for French-speaking Africa

a) Support from universities in France/Belgium/Lausanne
b) University cooperation projects as in Senegal
c) I&FA or SoA examinations in English
d) Volunteer mentoring visits
e) Development of on-line tuition tools

2.10.3 Longer-term options to develop

a) Support from African Development Bank
b) Other financial support
c) Enabling more substantive assistance programme
d) Perhaps in a few regional centres
3. Challenges of Educating Actuaries in Kenya: By Prof. Patrick Weke, University of Nairobi

3.1 Actuarial Profession in Kenya

The Actuarial Profession in Kenya started in the late 1980s through the initiatives of GoK – Col. Training at undergraduate and postgraduate levels was done at TCU, London. There are about 10 qualified actuaries working locally and at least 6 qualified actuaries overseas.

The Actuarial Society of Kenya (TASK) was re-launched in 2005. TASK managed to get full membership of IAA from 2010 and is actively involved in Actuarial education/training.

3.2 Key TASK Objectives

a) To develop and strengthen the actuarial profession in Kenya
b) To create a forum for members of the profession to meet and exchange ideas
c) To support and protect members and present common professional interest to Government and policymakers
d) To play an active role in actuarial education and the development of local actuarial expertise, professional standards and guidance
e) To encourage research in the development of actuarial ideas
f) To improve the education of financial consumers and raise public interest in such issues
g) To broaden the scope of the actuarial profession and promote our contribution in wider fields
h) To establish links with other professional associations in Kenya and internationally with similar objects.

3.3 CPD and Other Projects

a) Kenya Mortality Tables (in association with AKI)
b) Workshop on Enterprise Risk Management – AWB
c) Actuarial Risk Management Course (Actuarial Control Cycle) offered at UoN by Mr. Sundeep Raichura
d) Actuarial Seminars, Talks, etc

3.4 Actuarial Education in Kenya and EAC region

A number of universities offering full Actuarial Science degree programs

- University of Nairobi – Since 2000 with undergraduate and graduate programs. Has accreditation with AS
- Jomo Kenyatta University of Agriculture & Technology – since 2002 with undergraduate program
- Maseno University – since 2005 with undergraduate program
- Strathmore University – since 2009 with undergraduate program
- Makerere University – since 2004 with undergraduate program.

a) Other universities that have just started are UDSM, Kenyatta University, Moi University, MMUST, and other university colleges.
3.5 **Collaboration with other partners**

a) Peter Clark Memorial Fund through books donation, scholarships for capacity building and much more  
b) The Institute and Faculty of Actuaries (UK) through the MOU and book donation  
c) The Actuarial Society of South Africa (AS) through accreditation  
d) The 3E Foundation through prizes for best students and book donation  
e) Kenya Reinsurance through prizes for best students  
f) Association of Kenya Insurers (AKI)  
g) Insurance Regulatory Authority (IRA)  
h) Retirement Benefits Authority (RBA)  
i) And you.

3.6 **Collaboration with International Actuarial Associations**

a) International Actuarial Association (IAA)  
b) The Institute and Faculty of Actuaries (UK)  
c) The Actuarial Society of South Africa (AS)  
d) Actuaries Without Borders (AWB)  
e) Actuarial Educators Network (AEN)

3.7 **Challenges facing Actuarial Education in Kenya and EAC**

a) Scarcity of actuaries in the developed economies  
b) Relative secrecy that has surrounded the profession. Actuaries and their work have been a guarded secret  
c) Difficulty and cost of the professional training  
d) The duration of the professional training which on average is 5 – 8 years  
e) Lack of proper mentorship in pursuing professional papers  
f) Lack of fully qualified actuaries to lecture in universities  
g) Lack of adequate internship/attachment opportunities within the market  
h) Several sectors have not appreciated the role of an actuary and hence the feeling that there are no jobs for actuaries.
4. **The Actuarial Educators Network (AEN): By Francisca Venter**

### 4.1 The IAA and Education

Global environment calls for actuaries to have high levels of technical and professional competence. IAA’s mission includes an element for “developing education standards in order to address changing needs”.

IAA has its core syllabus setting minimum international standard to be regarded as professional actuary. Recent discussions have focussed on the IAA playing a role in promoting quality in actuarial education and ensuring greater global access to actuarial education.

### 4.2 Establishment of the AEN

There have been discussions over a number of years at the IAA on the formation of a networking structure for actuarial educators. A session at the International Congress of Actuaries in March 2010 unanimously agreed to the establishment of such a network. A subcommittee of the IAA Education Committee (Subcommittee for Actuarial Educators) was set up to provide leadership and direction for the AEN.

### 4.3 Purpose of the AEN

The purpose of the Actuarial Educators Network is to provide resources for, and facilitate communication about, actuarial education and research.

#### 4.3.1 Role of the AEN

a) To establish a communication forum and resource base for actuarial educators and researchers to improve the quality of their work.

b) To assist the IAA Education Committee in fulfilling their role through:
   - being an expert resource for IAA core syllabus reviews
   - assisting with the technical content of educational conferences organised by the IAA;
   - To collaborate in the facilitation of developments in the globalisation of education systems leading to common syllabuses and common assessments;
   - To participate in efforts to provide a consultative forum and resource base for associations developing their education requirements;

c) To assist established conferences of actuarial educators and to help establish new conferences.

### 4.4 Membership

a) The membership of the AEN is open to all involved, or interested, in:
   - Actuarial Education
   - Actuarial Research

b) It is important to note that the network will be specifically focussed on improving actuarial teaching and research, and not on dealing with student queries on study and examinations.

c) Currently over 300 educators on our mailing list but would like a lot more from the Africa region.
4.5 The AEN Website

The AEN Website is intended to share resources on research and teaching, and provide information on events of interest to actuarial educators.


4.6 How can the AEN assist in developing the actuarial profession in Africa?

a) Use network of educators for advice and support – search function on website should allow one to find people with specialist skills of interest
b) Use resources on website and newsletters to get ideas on how to improve teaching and education in your countries
c) Links with Actuaries Without Borders can facilitate support for specific needs and projects
d) Attend regional conferences of actuarial educators (publicised by the AEN)

4.7 Over To You

- Please join on the website- open to anyone interested in actuarial education and research and strongly encouraged for those involved in teaching
- No membership fee
- Get involved in AEN networking and activity
- Questions and discussion
5 The South African Qualification: By Francisca Venter, Director of Education, ASSA

5.1 Establishing a Local Qualification

5.1.1 Sharing Experience

There is need to establish most essential cooperative network and this can be summarized as follows:

5.1.2 About Volunteers

ASSA strongly relies on volunteers:

a) 150 of just over 800 qualified actuaries in South Africa are involved in Education – Boards, Committees etc.

b) 85 Registered ATO’s.

5.1.3 Management of Volunteers

a) SOUTH AFRICA :
   - Policy
   - Code of Conduct
   - Guidelines

b) AUSTRALIA :
   - 69 Committees
   - Charter of Committees
5.1.4 Qualification Content
Minimum curriculum set by the IAA is Fellowship level qualifications in English-speaking world are somewhat at a higher level than the minimum curriculum. The standards are maintained via:

a) Rigorous university accreditation process.
b) Complying with IAA syllabus guidelines.
c) Formal bilateral agreements with other societies (Mutual Recognition Agreements)
d) Internal quality assurance.
e) Actuarial Society - approved external examiners for university courses.

www.actuariesociety.org.za

The Actuarial Society of South Africa (ASSA) offers three designations:

a) FASSA – Fellow of the Actuarial Society of South Africa
b) AMASSA – Associate member of the Actuarial Society of South Africa
c) CERA – Chartered Enterprise Risk Actuary

There is a strong university base offering most subjects for local students

5.2 The South African Qualification
5.2.1 Relevance to other English speaking African countries - We are “closer to home”!

a) Building capacity through attendance of events is closer, easier and cheaper. Appropriate for CPD but also Education.

b) Greater similarity in contexts e.g. facing issues around HIV, no equity markets, lack of data i.e. Challenges in Africa, which become very important in teaching local relevance in later subjects.

c) Presence of a number of SA companies in African countries, who are ASSA members and who interact almost on a daily basis with the African fraternity.

d) Internationally, the teaching of Professional skills has changed to attendance courses e.g. Business Awareness, Modelling and Professionalism - accredited by UK. Easier to attend with ASSA.

e) ASSA currently still offers a written Communications exam which could be shared with others - not applicable for UK students.

f) Potential for deserving students with bursaries to enrol full time for post graduate actuarial courses at SA accredited universities.

g) ASSA involvement in accrediting African universities could potentially be increased. Important though to maintain a balance in demand for actuaries in countries and available resources.
5.2.2 Subjects required for AMASSA (IAA Requirements)

(Focus on Technical Principles and Professional Skills, commonly known as the "Toolkit")

<table>
<thead>
<tr>
<th>Rules for qualifying as an Associate</th>
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<tbody>
<tr>
<td><strong>Mandatory Academic and Professional Requirements:</strong></td>
</tr>
<tr>
<td>A101: Probability and Mathematical Statistics</td>
</tr>
<tr>
<td>A102: Economics</td>
</tr>
<tr>
<td>A103: Finance and Financial Reporting</td>
</tr>
<tr>
<td>A201: Financial Mathematics</td>
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<tr>
<td>A202: Models</td>
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<tr>
<td>A203: Contingencies</td>
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<tr>
<td>A204: Statistical Methods</td>
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<tr>
<td>A205: Financial Economics</td>
</tr>
<tr>
<td>A301: Actuarial Risk Management</td>
</tr>
<tr>
<td><strong>Note:</strong> The above subjects could be written through distance learning with the UK.</td>
</tr>
<tr>
<td>A302: Communications - AS offers written exam -</td>
</tr>
<tr>
<td>A401: Business Awareness Module (2 day course with assessment)</td>
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<tr>
<td>A402: Model Documentation, Analysis and Reporting (2 day course with assessment)</td>
</tr>
<tr>
<td>A403: Associateships Work-based skills (1 year)</td>
</tr>
<tr>
<td>A404: Associateship Professionalism Course (1 day)</td>
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</tbody>
</table>

5.2.3 Subjects required for FASSA

Not accredited on an individual basis outside of the MRA

<table>
<thead>
<tr>
<th>Rules for qualifying as a Fellow</th>
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</thead>
<tbody>
<tr>
<td><strong>ALL ACADEMIC REQUIREMENTS FOR AMASSA APPLY PLUS:</strong></td>
</tr>
<tr>
<td>At least 2 of:</td>
</tr>
<tr>
<td>F100: Alternative Fellowship Principles</td>
</tr>
<tr>
<td>F101: Health and Care Principles</td>
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<tr>
<td>F102: Life Insurance Principles</td>
</tr>
<tr>
<td>F103: General Insurance Principles</td>
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<tr>
<td>F104: Pension and Other Benefits Principles</td>
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<tr>
<td>F105: Finance and Investment Principles</td>
</tr>
<tr>
<td>F106: Enterprise Risk Management</td>
</tr>
<tr>
<td>At least 1 of:</td>
</tr>
<tr>
<td>F200: Research Option</td>
</tr>
<tr>
<td>F201: Health and Care Applications</td>
</tr>
<tr>
<td>F202: Life Insurance Applications</td>
</tr>
<tr>
<td>F203: General Insurance Applications</td>
</tr>
<tr>
<td>F204: Pension and Other Benefits Applications</td>
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<tr>
<td>F205: Investment Applications</td>
</tr>
<tr>
<td><strong>Must have a Practice Module:</strong></td>
</tr>
<tr>
<td>Must have:</td>
</tr>
<tr>
<td>A403: Fellowship Skills Work-based skills (3 years)</td>
</tr>
<tr>
<td>A404: Fellowship Professionalism Course (2 days)</td>
</tr>
</tbody>
</table>
5.2.4 Subjects required for CERA

a) A member must be admitted as either an Associate or a Fellow Member of the Society.

b) In addition, students are required to complete the following components:

c) F106: Enterprise Risk Management (UK ST9)

d) C100: Applied Enterprise Risk Management Course.

5.2.5 Accessing the South Africa Qualification:

a) We have accredited two subjects at the University of Nairobi and intend to accredit further universities.

b) (PS prospective universities-start building track records)

c) Students with exemptions will still need to join UK profession for other CT/CA subjects (Parts A1, A2, A3) but can transfer credits for UK passes to the SA system to get credit for exemptions.

d) Professional skills courses could be taken in South Africa. Our communication paper can be made available in the rest of Africa.
6. Professionalism: By Renata De Leers, IA|BE, Lomé, Togo

6.1 What is Professionalism for the Actuary

Professionalism is a key component of actuarial education. It is important to devote time to learning about professionalism as well as about technical skills.

It is necessary to develop a professional attitude and way of thinking – there are often no simple black and white answers. We need to learn what it means to do a good professional job.

6.1.1 Characteristics of a profession

The 6 key characteristics of a profession are:-

a) Members join together to apply a specialised skill
b) The skill has been developed through appropriate education
c) Members have a special relationship with those served
d) Recognised by the public as an authority in field of expertise, able to serve the public interest
e) Standards of competence and conduct of members
f) High level of integrity by members in exercising judgement.

6.1.2 Professionalism in Practice

Professionalism concerns behaviour of professionals and the profession which will:

a) Maintain the reputation and integrity of the profession
b) Serve the interests of clients/employers
c) Serve the public interest (the common good)

6.1.3 Professionalism at Two Levels

a) Professional issues facing the profession, for example
   ▶ responding to regulators
   ▶ helping to educate government, the media and public
   ▶ ensuring that the profession is ‘fit for purpose’

b) Individual matters of professionalism, for example
   ▶ high ethical standards
   ▶ adhering to the code and standards of practice
   ▶ reporting if necessary (whistle-blowing)

6.1.4 What is expected of us as professional people?

a) Demonstrating, and applying appropriately, specialist skills
b) Providing reliable up-to-date technical knowledge and advice
c) Complying with Profession’s code of conduct and standards
d) complying with legislation and regulator’s standards
e) Performing statutory roles to a high standard
f) Behaving ethically
g) Exercising judgement with high level of integrity
h) Communicating well
i) Having due regard to the interests of those affect
j) Respecting and supporting others
k) Relationship of trust with clients (fiduciary relationship)
l) Being reliably confidential
m) Life-long learning – developing our knowledge and skills
n) Having no adverse disciplinary record
o) Assisting the profession to serve the public interest
p) Contributing to public debate
q) Contributing to the work of the profession

6.1.5 Summary on Professionalism

   a) Incredibly important
   b) Applies collectively and individually
   c) Far reaching
   d) Not black and white
   e) Requires substantial and constant attention

6.2 The IAA and Professionalism

The IAA Professionalism Committee and its recommendations to the Council

6.2.1 The Mission of the IAA

   a) To represent the actuarial profession and promote its role, reputation and recognition in the international domain.

   b) To promote professionalism, develop education standards and encourage research, with the active involvement of its Member Associations and Sections, in order to address changing needs.

6.2.2 IAA Mandate to Professionalism Committee

The IAA Council requested the Professionalism Committee to address the strategic action required to “Achieve a common understanding of the principles of professionalism, including codes of conduct and disciplinary procedures”.

6.2.3 Key Conclusions

   a) A common understanding of the principles of professionalism (the “Principles”) is possible.
   b) Professionalism covers the actuary’s technical competence and skills, ethical behaviour and professional oversight.
   c) Aspects of professionalism should be introduced throughout the training and development of an actuary.

6.2.4 The Principles of Professionalism

   a) Knowledge and expertise
   b) Values and behaviour
   c) Professional accountability
6.2.5 Principle A: Knowledge & expertise

“An actuary shall perform professional services only if competent and appropriately experienced to do so.”

This principle is supported by the following elements:-

a) Specialist knowledge
b) Professional communication
c) Required education
d) Continuing Professional Development

6.2.6 Principle B: Values & behaviour

“An actuary shall act honestly, with integrity and competence, and in a manner that fulfils the profession’s responsibility to the public and upholds the reputation of the actuarial profession.”

This principle is supported by the following elements:

a) Ethical behaviour
b) Integrity
c) Independent advice
d) Trust and reputation
e) Public interest

6.2.7 Principle C: Professional accountability

“An actuary shall be accountable to a professional actuarial association or similar professional oversight organisation.”

This principle is supported by the following elements:

a) Entry and qualification standards
b) Code of conduct
c) Disciplinary process

6.2.8 Key points of discussion

a) What exactly is "competence"?
b) How to define communication in a professional context?
c) Is communication a “soft skill”?
d) Is business awareness always essential?
e) How to address the matter of the public interest?
f) How to deliver continuing professional development?
g) How and when should professionalism be taught?
h) How should professional accountability be defined?

6.2.9 Key Recommendations

a) The IAA should adopt the Principles as proposed.
b) The Principles should be used within the IAA to establish a common terminology and framework.
c) The Committee does not recommend that the IAA develops a model code of conduct. The proposed Principles are a sufficient basis from which Full Member Associations (FMAs) can develop their own codes of conduct. The process and experience of developing its own code of conduct is also an informative and valuable process for any FMA.
d) Council should consider further actions as set out in the report in order to establish the Principles within the IAA and its FMAs.

6.3 Supporting actuarial professionalism

6.3.1 Resources available to actuaries

a) Code of Professional Conduct
b) Regulations
c) Qualification standards
d) Continuing professional development
e) Actuarial Standards of Practice
f) Disciplinary Process
g) Peers
h) Common sense
i) Other support networks

6.3.2 Resource Development Models

a) Independent development
b) IAA principles/models
c) Leverage/mentorship

6.3.3 Supporting Knowledge and Expertise

a) ‘Basic’ education
b) Continuing professional development
c) Actuarial standards of practice
d) Peer review
e) Other?

6.3.4 Supporting Professional Accountability

a) Counseling
b) Disciplinary process
c) Model for international cooperation:
   ▶ Established and/or recruited panels of international experts to assist in local administration of counseling and discipline

6.4 International Actuarial Work and its Governance

6.4.1 Relevant issues

a) What constitutes international (cross-border) actuarial work?
b) What code of conduct should apply to international work?
c) What technical standards should apply to international work?
d) If the actuary is alleged to have done poor work, which association investigates the accusation?
e) Which association determines guilt and imposes disciplinary action if the investigating association determines that the accusation is correct?
f) What obligations should exist to require the disciplining association to notify the other association (or the IAA) of the disciplinary action?
7. Genesis of the Project “Dakar”: By Thierry Poincelin

7.1 Project in Senegal: Training and Professionalism

7.1.1 The geopolitical observation: A multifaceted continent

Mainly composed of four parts:

a) North Maghreb, Mauritania included.
b) Central Africa and Sub-Saharan
c) Southern South Africa
d) North-East Africa

With approximately forty nations and multiple languages: Arabic, French, English, and Portuguese, Spanish plus dialects and African languages. With variable economic development.

7.2 Finding the Professional

There has been little or no development of the profession except in a few countries: Morocco, Ivory Coast, and South Africa, for example and generally in small associations generally.

Two major areas:

a) An English-speaking world
   - Concentrated on the South
   - A common language, English.

b) A French-speaking world
   - Concentrated on the north, west and centre.
   - A common language, French,
   - An umbrella organization of professional insurers that is, CIMA, FANAF.
   - Not to mention Angola and Mozambique which are Portuguese-speaking

7.3 The Idea

The idea behind this project was to assist in the development of the actuarial profession in the French-speaking countries:

a) Same language
b) The same policies
c) Same economic culture
d) A "Federal" Economic Zone: CIMA FANAF.
e) Support from a local university recognized.
f) Train and unite the African Actuaries in Africa, by Africans for Africans.
7.4 Chronology

a) October 2007 in Dublin:
   - Presentation of the idea, proposal to create a subcommittee within the Africa Assistance and Consultation committee.

b) Quebec in June 2008
   - Creation of the Africa subcommittee
   - The Institute of Actuaries (France) and the Institute of Actuaries (Spain) whose experience together can be used to implement this idea, with the University of Economics in Dakar Senegal and two Senegalese actuaries.

c) Tallinn in May 2009
   - The framework of the project is completed.
   - Submitted by Julian Oliver and Thierry Poincelin.

d) Congress in June 2009 in Abidjan.
   - Presentation of the project to the participants.

e) February 2011 meeting with the University and the Federation of Insurance Companies

f) The project is based on three pillars:
   - Education
   - Professionalism
   - Assistance

7.5 Training

7.5.1 Teacher Training

a) The program aims to train university professors in the actuarial discipline so that they can in turn train students in these subjects.

b) Sufficient numbers of University professors trained in actuarial science will deliver the knowledge necessary for the education of Actuaries as part of a two year Masters degree.

c) In addition to their initial training, teachers will receive actuarial training. To achieve this, teachers from Senegal will have gone to France and Spain for specialised training.

7.5.2 Modules

The training of teachers is divided into modules

a) 25 or 50 hours of lectures.

b) preceded by 50 hours of preparatory work and

c) followed by 25 hours of personal work.

The Modules are:

<table>
<thead>
<tr>
<th>Lesson Hours</th>
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<tbody>
<tr>
<td>0 : Introduction</td>
<td>25</td>
</tr>
<tr>
<td>1 : Financial Mathematics</td>
<td>50</td>
</tr>
<tr>
<td>2 : Investment Analysis (I)</td>
<td>50</td>
</tr>
<tr>
<td>3 : Investment Analysis (II)</td>
<td>50</td>
</tr>
</tbody>
</table>
4 : Introduction to Actuarial Maths 50
5 : Actuarial Maths : Life and Pensions 50
6 : Maths: Actuarial Assets / Property 50
7 : Actuarial Management 50
8 : Transfer of professional experience 25

**Total Lesson Hours** 400

The teachers follow only the modules they need in order to teach their subject.

The courses are spread over two years: -
- First year: basic knowledge,
- Second year: expertise.

The expected number of teachers is 15. Their training will take place in Lyon, Madrid as modules.

### 7.5.3 Financing

- a) The investment is only required during the two years of teacher training.
- b) Estimated total: Transport, accommodation and administrative costs is **Approximately € 75 000 per year**.
- c) Training costs for Actuarial Students is catered for in the university fees.

### 7.5.4 The training of future Actuaries

- a) A Master's degree in Actuarial Science and Finance takes two years and covers the Core Syllabus of the International Actuarial Association.
- b) The Masters training will be provided and audited by the French and Spanish institutes and report to the IAA in the line with the criteria of the IAA.
- c) Training will take place only in Dakar, Senegal.

### 7.5.5 Chronology

[Diagram showing the timeline for the training program, with stages labeled as follows:
- Formation I
- Formation II
- Master I
- Master II
- Mémoire
- Mémoire]

7.6 Professional Aspect

a) In February 2011 a professional association based in Dakar was created.
b) Procedural rules based on those of the Institute of Actuaries France, in accordance with the IAA criteria.
c) Associate members graduate from a training recognized by the CA.
d) They become qualified actuaries after acquiring 3 years experience.

7.6.1 Professional Association

Statutory Committees:

a) Scientific committee defines the level of minimum knowledge.
b) Qualification committee appoints qualified actuaries.
c) Accreditation committee issues clearance in a particular area.
d) Ethics committee investigates claims by an actuary.
e) The audit committee is responsible for auditing the accounts
f) The Committee of special advisers validates the interpretation of the statutes or procedural rules.
g) The Jury admits Associate Members
h) The Disciplinary Council and Appeal Board may decide on a penalty
8. **Workshop No. 1: Education of Actuaries in Africa: Facilitated by Christopher Daykin**

8.1 The actuarial profession is not well known in Africa.

8.2 Costs of registration and sitting the exams prohibitive – there is need for reduced fees. The UK profession currently has reduced rates under certain circumstances.

8.3 The need for a Technician qualification – most members felt that there was need for an Actuarial Technician qualification and this needs to be recognised.

8.4 Regional actuarial associations to work more closely together.

8.5 Actuarial students in different African countries have preferences for US examination system whilst others preferred UK actuarial exams.

8.6 There is need to work closely with insurance, pensions and social security regulators.

8.7 A lot of debate as to whether or not the universities are taking on too many actuarial students who end up with no actuarial jobs – hence turn to other professions e.g. accountancy, CFA etc.

8.8 Should the national / country actuarial bodies accredit the universities that teach actuarial degrees? There is need for universities that teach actuarial degrees in a country to work closely together.

8.9 Discussions around professional attachments / secondment of actuarial graduates were discussed. The difficulties of practically getting this done were acknowledged.

8.10 Need to work closely with employers so as to ensure that they understand and support the profession.
The Africa Sub – committee was created on 4 November 2008 (under Advice & Assistance Committee)

9.1 Role of the Sub Committee

a) Identify the needs in African Countries to which the IAA could respond at the individual, national and regional level
b) To liaise with the authorities, actuarial association etc. to assist in the development
c) To coordinate the response of the IAA to request of assistance from authorities, actuarial associations and actuaries
d) To work with IAA Member Association and Committees to promote coordination and harmonization
e) To carry out its responsibilities in conjunction with A&A Committee

9.2 To provide a forum for interaction

The first forum was the Congress in Abidjan in June 2009. The Topic was: “The Actuary: Professionalism and Responsibility to serve public interest”. The congress allowed a better understanding of the actuarial need in Africa.

9.3 The Senegal Project

a) Ignacio del Barco initiated the project concerning a “training of trainers”. The main lines were defined in some meetings held in Dakar (with my participation) on November 2 2009.
b) In the same meetings the need of creating an actuarial association in Senegal was discussed.
c) The two projects should stay together

9.4 Adding new objectives

a) Other projects?
b) Create a feeling of collaboration among actuaries
c) Association leader?
d) Formal association?

9.5 Regional Associations?

a) During the Abidjan congress the association FAF (FANAF) was discussed.
b) A meeting took place in February 2011.
c) It seems that FAF is meeting once a year (during the FANAF convention)
d) We have to find other possibilities e.g. Informal associations? Link among actuaries.
9.6 Actuarial Networks: the main tools we have

a) French speaking Africa
   › 54 replies
   › 49 actuaries
   › 12 out of Africa

b) English speaking Africa
   › 60 replies
   › 53 actuaries
   › 1 out of Africa

9.7 Accepting suggestions

a) More information via networks?
b) Create an informal association and an interactive web-site?
c) Others?
10. **Investment of Insurance Funds in the African Context:**

*By Lambert Gbossa*

10.1 **Context and Justification**

10.1.1 The principle of a periodic actuarial valuation is listed in the legislation of countries of Francophone Africa. It is reinforced by the recommendations made by these countries at the meeting in Yaoundé (1997), which stipulate that prior to undertaking any reform, in the short term, an accurate financial analysis and long-term actuarial analysis (Recommendation 17) has to be conducted.

10.1.2 Since the 70s, institutions are set to meet the legal requirements through actuarial valuations as periodicities under the statutory scheme. With hindsight of thirty years, it appeared that the actuarial estimates are not converging and the valuations have not sufficiently supported managers and policy makers to establish effective programs for management and policy reform systems of social protection.

10.1.3 It is not the actuarial methods and techniques that are in question but the lack of proactive mechanisms to adapt to the real issues from the African context, assist in monitoring the actuarial recommendations, improve on the administrative and financial aspects through strengthening the national capacity to consistently coordinate the collection and management of data necessary for actuarial valuations in order to improve the reliability of future assessments.

10.1.4 This study is based upon a retrospective analysis of actuarial projections made for the pensions industry for a set of public social security schemes in Africa. This is generally a plan established by a law whose management is entrusted to a body providing public service and enjoys financial autonomy.

10.1.5 Observations from data collected on long-term benefits are related to statistical deficiencies that affect the management of short term sectors, such as family benefits and short-term benefits allocated as part of occupational hazards. The problems encountered in statistical data and technical parameters are indeed similar.

10.1.6 More specifically for the pensions sector, the financial system arranged by the legislation requires that for a given period, the total revenue (contributions, investment income) balance all expenses (benefits, administrative costs). The period of equilibrium can be defined as the year (distribution) or set of years (partial funding).

10.1.7 Several actuarial valuations have been carried in many countries out since the 70s for social security schemes. For the pension’s sector, forecasts were provided for a period of 20, 30 and 50 years.

10.1.8 It now became necessary to conduct a retrospective analysis by comparing the predictions made a few decades ago with current issues. This involves analyzing on one hand how actuarial assessments contributed to the improvement of administrative management and brought about the ease of decision-making on the other.
10.1.9 This review focused on actuarial valuations carried out in about 16 Francophone, Anglophone and Lusophone African countries. The analysis included the comparison of projections for a year from the values last observed during the same year in the long run. The comparison is part of data collected on relative and absolute values.

10.1 Population projections

Forecasts done in some countries have come true. Other forecasts have showed major differences and discrepancies and noteworthy changes in different areas:-

a) An over estimation of the number of workers.
b) An overestimation or underestimation of the number of retirees
c) An underestimation of the number of invalids.
d) An underestimation or overestimation of the number of widows
e) An overestimation or underestimation of the number of orphans

10.2 The legislative

10.3.1 The difficulties in providing the tools for monitoring and planning of social security are sometimes rooted in the ambiguities and inadequacies of the legislature. The laws of some African countries in this aspect are an importation of legislation of the former metropolis. Thus some of these laws are inspired from French, Belgian, English, Portuguese and Spanish legislation.

10.3.2 Administrative records are lacking in the socio cultural context and particularly to the beneficiaries. The collection of documents is methodical like that of the postal system and covers the whole country and works well. The criterion for determining occupational mortality is deficient especially in the socio-economic or demographic context.

10.3.3 They continue to be based on demographics of the 1950’s. At that time due to poor sanitary conditions, mortalities were still high. Today AIDS has reached a high prevalence level that was unknown then.

10.3.4 Interventions and sometimes cumbersome supervisory authorities have made it quite difficult to identify malfunctions in actuarial science. Service notes to resolve legal voids or interpretations made by the officers to implement the code were not consistent with the social security standards. They have not always been favorable to the assumptions adopted for the actuarial projections. Sometimes the rules of interpretation have been contradicted by the courts.

10.3.5 The daily practice of legislation was sometimes offset by the actuarial valuation. It sometimes contradicts the rigorous application of the legislative devices adopted by the actuarial valuations particularly with regard to:-
a) Compliance with the rules prescribed for the calculation of fees.
b) The implementation of the legislative scheme for the collection of contributions.

10.3.6 New benefits were approved; new categories of beneficiaries were included in the legislative device specifically for political reasons and without prior study. The actuarial analysis would often address unpredictable extensions which concern either the background of the staff in question. Students and trainees are treated as employed persons, social welfare has been mistaken for with Social Security. The facilities offered to the beneficiaries were connected to an effective scheme of succession. Voluntary insurance was sometimes included to the compulsory insurance scheme.

10.3.7 These factors, some of which are beyond all expectations have impacted negatively on actuarial estimates and may have increased the gaps between forecasts and the final data observed.

10.4 Financial Forecasts

From a financial standpoint, significant differences have been identified between the financial forecasts and actual data. Positive and negative differences were observed between:

a) The forecast of salaries and projections from the contributions. The payroll was expected to at times go beyond or in other instances fall short of the ultimately realized
b) The amounts projected for the pensions of retirees and beneficiaries presented strong differences.

10.4.1 Underwriting reserves were inadequate than as was initially intended. The reasons for such differences must be sought in the statutory, administrative management, accounting management, management of employees, the management of recovery, the determinants of benefit calculation, the statistical criteria, demographic and financial data.

10.5 Management Services

10.5.1 In the absence of sufficient records, it was difficult to determine entitlement to benefits and to monitor the maintenance of this benefit. The differences are difficult to discern between the true and liquidated duties actually paid.

10.6 Accounting

10.6.1 To make reliable predictions of Actuarial Finance, it is necessary to have reliable accounting data, valid and complete. The process of obtaining this data is faced with communication challenges between the headquarters and regional offices.
10.6.2 The differences observed between the actuarial projections and financial data are ingrained in accounting practice and are not in conformity with the appropriate standards, including:

a) Compliance with regulatory provisions in respect to the timelines of financial statements, consistency and certification;
b) Evaluation / assessment of the real assets;
c) Regard for the autonomy of the financial period;
d) Managing separate accounts for the life and short-term segment (pension, permanent disability), and general and long term segment (family benefits, medical expenses and per diem ensuing from accidents);
e) Cash flow management;
f) The reliability of the accounts is not assured in the absence of the application of the IFRS rules

10.7 Administrative Management

Another constant concern is the rate of red tape that is the percentage of premiums collected and actually used for the administrative operation. Here again the difficulty to have good reliable estimates did not facilitate the actuarial estimates. It should also be noted that the devices used to allocate these costs on the sectors are inappropriate and the goal of separate management is often found wanting.

10.8 The Number of Active Workers

10.8.1 The procedure for identification and registration of staff is not always operational and it very time-consuming. Data provided by employers is often incomplete. Most staff have no identification number. The file of active registration is incomplete or is not factual. It includes retirees and a significant number of staff who are not covered.

10.8.2 The number of staff in active employment based on the actuarial projections is not known. Adhoc "contributors’ investigations" had to be undertaken at the actuarial assessments to approximate the numbers. These adhoc surveys are often implemented in conjunction with the daily operations. This has not really helped to solve malfunctions.

10.8.3 The uncertainties have affected the initial data on staff in active employment and have a direct impact on the future fruition of assets and the beneficiaries of retirement settlements, invalids and survivors that are resultant from the initial population in case of mortality benefits.
10.9 Rate of Growth in the Number of Active Workers

10.9.1 Due to recession and continuing increase in unemployment, difficulties have been encountered to estimate the likely rate of increase in the workforce. But there are also difficulties with the system for collecting and processing information. The collection of data necessary for actuarial valuations were sometimes made empirically on the basis of samples due to malfunctions that affected the daily management.

10.10 The Management of the Collection of Contributions

10.10.1 The difficulties to achieve the contributions forecasts and probabilities are also explained in the problems of proper collection of these contributions.

10.10.2 The main challenges must be addressed:

a) The long delay in registering employers;
b) Difficulties in identifying active employers and contributors;
c) Inadequate management of recovery litigation;
d) The lack of comparison of data between financial services and accounting services and collections.

10.10.3 In many countries, the call premiums still lacks monitoring and rigor. All employers are not always known.

10.11 Determinants of Calculating Benefits

10.11.1 The determination of the reference wage for the calculation of benefits was in turn subject to uncertainties because the wage reports are not systematically addressed. Thus, the procedures for collecting wages are ad hoc and use a "survey contributors" when calculating benefits. So is the risk that has not been often treated as data collected retrospectively on the career are not the actual working life.

10.11.2 Also, the notion of actual period of contributions required for the calculation of benefits is often replaced by the insurance period calculated as the total period between the date of first membership in the social security system and the date of eligibility for benefits. Virtually any period worked or supposedly worked is validated for the calculation of benefits and this is detrimental to financial stability. Sometimes it is the insured that is requested to provide a posteriori evidence of its occupation. Substitute a career is often attributed: just why the worker finds two witnesses attesting to the honor they were co-workers. It is not easy to deal with these uncertainties in long-term forecasts.
10.12 Rate of compensation increase

10.12.1 Adhoc assumptions are usually adopted for failure to have appropriate data on wage trends over a period of time.

10.12.2 Furthermore, the structural adjustment process especially that of the 1980s had a negative impact on employment. The reduction of public investment and fiscal capacity of the state have not been favorable to employment as far as remuneration is concerned.

10.12.3 These sudden and alien phenomena of structural and economic crises and conflicts have not been sufficiently addressed. Because of the limitations, the public investment programs have had a negative impact on employment in the private sector. In some places, employment opportunities have drastically reduced.

10.13 Beneficiaries

10.13.1 Data is collected on a trial empirical basis survey of "beneficiaries." When it was impossible to obtain data on the numbers they have often been deduced from the accounting data based on average book value. They are then extrapolated to the entire target population assuming that the empirical distributions may be valid in time for the general population. A numerical uncertainty which affects the number was added and the uncertainty of their distribution by age and sex.

The absence of a statistical service sometimes did not help in the following: -

a) The standardization of working methods;
b) Development of statistical tools.
c) The quality and categorization of subject between active and inactive;
d) The development of statistical regulations.
e) Acquiring data on dependents: spouses, children and benefits provide.
f) The classification of relationships between workers and dependents;
g) Collection of demographic, frequency rates, severity rates and actual time to perform the work.

10.14 Actuarial Interest Rate

10.14.1 The uncertainties related to the estimated actuarial rate of interest plays an important role in the prospective evaluation of products in the pensions industry.

10.14.2 The legislative arm of the government has often been silent regarding the regulation and financial constraints related the rates.

10.14.3 The State may set an authoritarian rule in the application of interest to reserves deposited with financial institutions. The consequence is that the assumptions made for the technical choice of actuarial interest rate were rarely performed.
10.14.4 Determining the actuarial rate of interest was due to random uncertainties in the identification and management of funds in the absence of rules to determine their "fair value".

10.15 Demographics

10.15.1 Essential data such as date of birth, sex, marital status was not always available. Such data included:

   a) The number of married persons
   b) The average number of insured spouses.
   c) The average number of insured children.

10.16 The Technical Basis for Mortality and Disability

10.16.1 Often it was not easy to have access to national mortality benefits. To solve the problem, mortality tables from the United Nations were used. Despite the technical precautions taken, disparities were observed between the population projections for the insured and the data finally acquired. It is worth mentioning here that staff are today among those who are heavily exposed to the risk of AIDS.

10.16.2 The strong divergence in the level of the number of beneficiaries of disability pensions raises serious concerns. It was not always possible to have data on the risks of entry into occupational illnesses.

10.16.3 The reference list of occupational illnesses is still in use but does not fit the context of francophone Africa. It was imported from Europe (during the 4th Republic era) and was rarely revised.

10.17 Monitoring of Actuarial Valuations

10.17.1 Apart from a few countries, actuarial valuations have not been generally been followed-up. Managing the implementation of the reports was often limited to the social security institution and a few times to its Board of Directors. Employers’ organizations or those workers whose role is essential in organizing the social protection system are not generally aware of the report. The goal of the valuation tool-making or development planning of social security was not often achieved. It was often treated as an isolated one-off exercise and not as a tool to support the development of social security. The exercise has not always held in continuity and there was no effective management of knowledge. Between valuations, there was no organized program generally support the organization and maintenance of statistical data, and determined action to monitor the technical bases.
10.17.2 Sometimes the actuarial valuation was initiated while the conditions were not met for statistical data and reliable financial or real. Recommendations were made explicitly and consistently for years after each actuarial valuation to improve the nature and quality of statistical data. They were followed by little effect.

10.17.3 Each actuarial valuation was often seen as an exercise in both isolated and new that has not contributed to the consolidation of the technical basis. It has often been isolated from the daily management and organizational system and methods of work. She often reused ad hoc systems for data collection was peripheral to the daily management; it has not helped to correct the malfunction. Very rarely, technical shortcomings identified were taken into account to improve the technical basis for subsequent evaluations. The actuarial valuation has not been located in a comprehensive and sustainable.

10.18 The Investment of Funds for Institutional Investors

10.18.1 In regards to private insurance, it is only in the 1990s that the CIMA Code set of investment regulations became effective. The provisions on social security are still very vague.

10.18.2 In social security institutions, technical reserves have been established under the usual standards and they have rarely been invested according to the social security standards. Sometimes the technical reserves for long-term sectors were kept in short-term bank deposits. In some countries a requirement was put in place to maintain cash flow, with the Public Treasury, a significant proportion of the technical reserves. The liquidity of the fund is allocated is seen as an accomplishment. In the absence of appropriate regulation, management of reserves has not being consistent with the relevant standards of management:

a) The security of funds has always been systematically sought
b) The liquidity of funds was often compromised.
c) Financial establishment adopted for certain branches with an accumulation of technical reserves, was inadequate from the few financial market opportunities.

10.18.3 In cash, while cash requirements can normally be actuarially determined, this approach has not often been adopted. This resulted in a poor resolve of the desirable level of cash and an overestimation of the actual level maintained for the treasury, to the detriment of long-term investments.

10.18.4 In African countries, had it not been a matter related to mismanagement of funds, funds held by the insurance companies would have been an important part of capital expenses training each year especially when the training of pensions is based on the capitalization of contributions and premiums received. The amounts accumulated sometimes disappeared for lack of opportunities and ad hoc measures for their placement. Compliant investment opportunities were often non-existent or were not often explored.
10.18.5 Special problems in the management of collective savings (free or compulsory insurance, savings banks and microfinance institutions) are not yet sufficiently studied in Africa. Indeed, the particular problems in the placement of insurance funds free and compulsory are in some ways far removed from the general investment problem.

10.18.6 In the context of economic uncertainty facing Africa, the investment of pension fund compulsory schemes raises more complex than the investment of reserves in private insurance. But we must treat all investments of private insurance and compulsory schemes. The investment of funds held by institutional investors (banks, insurance, social security funds pose to organizations that are responsible, constant problems, especially in times of economic instability and economic crisis makes the search for financing uncertain.

10.18.7 The organization adopted for financial assurances had been based on the existence of a money market and a financial market that did indeed set up for example in WAMU countries than to the year 1996. The consequence was that in 60-90 years, the reserve management was not consistent with the standards. Since the financial market in the WAMU, institutional investors have not sufficiently exploited the rich opportunities offered by this market. The paradox is twofold: there are funding needs of the economy and there is also capital for this activity. The encounter between supply and demand is low for the insurance fund.

10.18.8 The financial crisis of 2009 probably hides other crises. The banking crisis and especially the example of Goldman Sachs in the United States or the Khalifa Bank are indicative of the snowball effect, as the crisis in Greece show poor management of financial risks. The rating agencies have shown their weakness. These crises should review and reorganize the mechanisms of risk management to protect the safety and performance of technical reserves. Appropriate regulations for the management of investment and prudent risk management have failed to point to the categories of eligible fixed values or variables, the nature of the debtors and their creditworthiness.

10.18.9 Technical reserves required to be provided by insurance are based on varying degrees of capital accumulation. Their investment in long-term programs depends on their degree of liquidity in relation to commitments to policyholders. On the other hand the Bank and the Insurance practice more operations adjacent to each other or are complementary. These operations include both risks.

10.18.10 The current economic crisis affects both domestic savings, public aid to development as foreign direct investment. This scarcity of capital is detrimental to economic and social development, particularly in areas such as infrastructure (roads, ports, airports ...), water, energy, housing or capital. While the contribution that the insurance fund to bring these areas is low. Investment risks are not properly identified or treated appropriately. The opportunities offered by development finance institutions or international financial institutions are not sufficiently used by pension funds, while at the same time countries are looking for outside capital.
10.18.11 In risk management and investments, the complementary free insurance, compulsory insurance and the banking system should be better highlighted. The procedure for extending insurance beyond the formal sector should be considered to enhance the function of the insurance savings, the economic and social utility and synergy with the banking system.

10.18.12 In the new landscape, new approach to savings mobilization by microfinance institutions is a major and crucial to increase the effectiveness and efficiency of social insurance schemes. The promotion of micro insurance and its articulation on insurance consolidate access to the money market mutual fund systems from other sources.

10.18.13 The accumulated capital investment was sometimes hazardous or has not performed according to a rational plan. The risk to the solvency of the debtors has not been sufficiently addressed.

10.18.14 Provisions have not been taken to ensure that certain investments, maximum safety, liquidity and yield.

10.18.15 Pressure was exerted by the state to provide loans or to subscribe to investments in fixed income securities (state funds or funds guaranteed by the state borrowing of local authorities), while the conditions of solvency debtor was not acquired or that the risks of credit market or operational purchasing power of money or forced reduction of return on capital have been processed.

10.18.16 Investment in variable income securities (common or preferred shares, shares in companies do not enjoy concession or monopoly, satisfactory arrangements have not been taken to prevent the loss of principal and interest, limits the risk of repayment at a discount.

10.18.17 There is no certainty that the standards for calculating mathematical reserves and the standards for capital adequacy have been adopted, an investment discipline has been followed and that adequate supervision was organized according IFRS, including the handling of financial risks associated with the management of reserves, exchange rate and credit rating.

10.18.18 Preference is often given to the historical values of equity (book to book according to IFRS) and not enough on the adequacy of reserve levels as prescribed in Basel II. But we know that the lack of adequate management resulted in Africa, a sharp depreciation of assets. The data is unreliable; the risks are poorly managed, inadequate internal controls.

10.18.19 While the role and place reservations are essential both in the investment management of private insurance as compulsory insurance, reliable methods of valuation of assets and their risks have not been applied.
10.19 Reform of the Actuarial Process: Financial Sustainability

10.19.1 In the African context and given the uncertainties that affect the financial and statistical data made available for actuarial valuations, actuarial valuations alone are insufficient to help organize mechanisms to preserve the financial equilibrium. It is planned to take better account of this context to do the following levels:

a) Reliability of the technical and financial management;
b) Organize the secure preparation of actuarial valuations;
c) Establish a program to support the daily management, organize the daily monitoring of financial management, collecting on an ongoing basis the statistical data and actual financial, appreciate the differences to act promptly and resolve discrepancies.

10.19.2 Financial viability is a by-product of the actuarial valuation it works the same way. It should not be confused with it. It uses the results of the actuarial valuation, monitoring and organizing its focus on the assessment of financial stability in the short term (three to five years and very restrictive criteria). Financial sustainability is organized at least once a year, a tool for management control.

10.19.3 While in the actuarial practice, actuarial projections and accomplishments will converge in the long run. Financial sustainability is a tool for daily management and comparison of actual data for the daily management with those provided by the annual forecast. It is a tool for gap analysis and adjustment, it helps to prepare and monitor budgets, produce actuarial balance in the short term, to provide the techniques to monitor the main parameters of financial management.

10.19.4 In this way, we have a tool for the rehabilitation of the administrative and technical refinement of statistical and financial data as well as monitoring.
11. Using Embedded Values to Value a Life Assurance Company:  
By Craig Falconer

11.1 Uses of Embedded Values

Companies need valuations for various reasons:

a) Determining share price when undertaking a listing
b) Mergers and Acquisitions
c) Ongoing monitoring of company performance by management, shareholders and industry analysts
d) Used for setting management’s bonus incentives i.e. by placing notional internal value on a company

11.2 Embedded Values Components

11.3 Embedded Values

a) EV = discounted value of future s/h profits on existing business plus NAV less capital costs
b) Ignores future new business
c) Many companies include EV in AFS
d) EV earnings better measure for company performance than I/S
   ‣ New business strain
   ‣ Prudent Reserving
   ‣ Solvency Capital
e) Embedded Value reporting standards
   ‣ Traditional EV
   ‣ European Embedded Value
   ‣ Market Consistent EV
   ‣ SA PGN107
11.4 Appraisal Value

a) Goodwill needs to be added to Embedded Value to arrive at Appraisal Value
b) Depends on company’s infrastructure, quality of staff and effectiveness of policies/procedures as well as managements’ ability to attract future new business
c) Quantified by calculating the Value of Future New Business
d) $AV = EV + \text{Value of Future New Business}$

11.5 Value of Future New Business

a) Subjective
b) Two approaches:
   - Use of value of new business multipliers
   - Project expected new business cash flows
c) Take into account Management view and budgets
d) Challenges in determining suitable value:
   - Management budgets usually aggressive
   - ….also suitable for setting business targets may not be suitable for AV
   - For newly established companies, value of new business often negative because of high relative expenses
   - Sensitive to regulatory changes, competition and economic environment
   - Need to find balance to determine realistic long-term new business growth

11.6 Advantages of EV’s and AV’s

a) EV accepted starting point in setting a price
b) EV a proxy for share price
   - Share price $= EV / \text{(number of shares)}$
c) Published EV’s provide more relevant information to potential investors and analysts
d) More accurate reflection of performance than published I/S
e) Adds more stability to share price
f) Provides useful ratios i.e. Return on EV
   - $\text{RoEV} = \frac{EV \text{ earnings}}{EV \text{ start of year}}$
e) EV more accurate / objective than other methods of determining share price:
   - i.e. Compare share price to multiple of earnings
f) Published EV discloses Value of New Business
   - Shows new business profitability
   - More information

11.7 Challenges

a) Balancing stakeholders
b) Determining suitable Risk Discount Rate
   - SA market currently trading at discount to EV
   - $11.7.1$
   - $11.7.2$
c) Regulations and tax legislation e.g.
   - Restriction on shareholder transfers e.g. currently in Kenya 30% restriction on shareholder transfers from Life Fund
   - Deferred Tax
d) Best estimate assumptions.

11.8 SA Companies – Key indicators

<table>
<thead>
<tr>
<th>Description</th>
<th>Liberty December</th>
<th>OMSA December</th>
<th>Sanlam December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Premium</td>
<td>22.8</td>
<td>22.6</td>
<td>23.0</td>
</tr>
<tr>
<td>Acquisition Expenses</td>
<td>2.9</td>
<td>3.1</td>
<td>2.8</td>
</tr>
<tr>
<td>Management Expenses</td>
<td>5.9</td>
<td>5.4</td>
<td>5.2</td>
</tr>
<tr>
<td>Earnings/(Loss) for the year</td>
<td>2.6</td>
<td>0.2</td>
<td>1.8</td>
</tr>
<tr>
<td>Expense ratio (%)</td>
<td>26.0</td>
<td>24.0</td>
<td>22.4</td>
</tr>
<tr>
<td>CAR Cover (times)</td>
<td>2.7</td>
<td>2.6</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Group 1

- **HEPS (cents)**: 568.8 16.4 586.8 >100
- **Dividend per share (cents)**: 455.0 455.0 455.0 -
- **PVNB (cents)**: 22.7 23.1 28.2 (1.8)
- **VNB Margin (%)**: 1.2 1.3 2.6 (7.7)
- **Value of new business**: 0.3 0.3 0.7 (13.3)
- **EV**: 0.3 0.3 0.7 (13.3)
- **RoEV (%)**: 13.4 (6.5) 3.4 >100
- **EV risk discount rate (%)**: 11.1 12.1 10.3 (8.5)

11.9 Concluding Comments

- a) EV’s are widely used
- b) Many uses
- c) Here to stay for a while in Africa
- d) Countries adopting Solvency II?
12. Development of Actuarial Education in Africa: By Sundeep Raichura

12.1 Africa – The dark continent

12.1.1 Africa Statistics

Africa’s population accounts for 14.95% of the world’s population – UN Statistics estimates Africa’s GDP as at 2008 to be about the same as Russia or Brazil’s GDP

a) 54 countries, latest S Sudan
b) Population of 1.033 Billion
c) Africa GDP is $1.6 Trillion
d) Average GDP per capita is $3,500
e) Life expectancy 52 years
f) 15% of global population
g) 20% of the world’s land mass
h) 12% of world’s farming land
i) 30% of the world’s minerals
j) But only 2% of global GDP
k) 30% of the world’s poor

12.1.2 Continent Demographics (I)

World map indicating the Human Development Index category by country

Source: Indices & Data | Human Development Reports (HDR) | United Nations Development Programme (UNDP)
12.1.3 **Africa’s GDP per capita per country**

National GDP per capita

National GDP per capita ranges from wealthier states in the north and south to poorer states in the east. These figures from the 2002 World Bank are converted to US dollars.

12.1.4 **Poverty prevalence in Africa**

Index values that show relative poverty of African countries

Source: 2004 list of countries by quality of life, United Nations Development Programme
High index values, indicated by lighter colours, show the relative poverty of African countries as ranked by the UNDP’s 2004 list of countries by quality of life.

12.1.5 Africa – a history of poverty

The East is taking big strides to alleviate poverty; in Sub-Saharan Africa, poverty is tightening its grip. Out of 1.3bn people living on less than US$1 per day, 380 million reside in Sub-Saharan Africa

12.1.6 African economic development until 2000

Key Challenges

a) Poorest countries  
b) high impact of conflicts  
c) > 90% SME & agrarian (informal)  
d) low literacy rates  
e) low managerial capacity  
f) weak legal framework  
g) inadequate property rights regime  
h) low equity base  
i) HIV/AIDS  
j) poor infrastructure  
k) globalization

12.2 Where is Africa going?

12.2.1 Change is happening!

› Literacy levels continuing to increase  
› First African woman to win Nobel Peace Prize  
› Dictatorship becoming a thing of the past
And African American with Kenyan roots becomes first Black US President!

12.2.2 Lions on the move - Africa Today

a) Sustainable growth rates in a growing number of countries and stable macro-economic environments.

b) Technology catalyst for rapid change
   ▶ Growth in mobile cellular networks leading to quantum leap in many countries
   ▶ Africa (Kenya) leader in mobile money transfers and banking.

c) Other infrastructure developments (roads, ports, power)

d) Increases in foreign investment

e) Common trade areas

f) Growth of stock markets and financial services sector

g) Real GDP rose 5% p.a. from 2000-08
$1.6 trillion
Africa’s collective GDP in 2008,
Roughly equal to Brazil’s or Russia’s

$860 billion
Africa’s combined consumer spending in 2008

316 million
The number of new mobile phone subscribers signed up since 2000

60%  Africa’s share of the world’s total amount of uncultivated arable land

52    the number of African cities with more than 1 million people each

20    the number of African companies with revenues of at least $3 billion

Stats from McKinsey

12.2.3 Lions are on the move - Africa Tomorrow

a) More than a resource boom
b) External trends will support future growth
c) Long-term growth by social & demographic trends
d) Long term growth prospects look promising
e) Growing financial services sector

$2.6 trillion
Africa’s collective GDP in 2020,

$1.4 trillion
Africa’s consumer spending in 2020

1.1 billion
The number of Africans of working age in 2040

128 million
The number of African households with discretionary income in 2020

50%  the portion of African livings in cities by 2030

Stats from McKinsey

This is the decade where Africa will come out a winner!
12.3 Actuarial Profession in Africa

12.3.1 Current Status

a) Well developed in South Africa  
b) IAA member associations  
   ▶ Full - Egypt, Ivory Coast, Kenya, Morocco, SA  
   ▶ Associate – Cameroon, Ghana, Nigeria, Zimbabwe  
   ▶ Non IAA country associations – Tanzania, Uganda  
c) Small number of qualified actuaries in Africa outside of South Africa  
d) Large student community in many countries.

12.3.2 Actuarial Education

a) Most common route to qualification in Anglophone Africa – UK qualification  
b) SOA common in Ghana  
c) Francophone Africa Unit based  
d) New SA Actuarial Society education strategy  
e) University actuarial science programs – SA, Kenya, Uganda, Zimbabwe, Ghana, Nigeria attracting some of the brightest and most talented students  
f) Disillusionment from current dearth of job opportunities for actuarial students forcing many sadly to abandon actuarial career

12.4 Areas of Actuarial Work in Africa

12.4.1 Insurance: Wealth and Insurance Penetration

Top 10 Countries in Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP (USD Billion)</th>
<th>Market Size of Insurance Industry (USD Billion)</th>
<th>Penetration %</th>
<th>Per Capita Income (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equatorial Guinea</td>
<td>10.30</td>
<td>0.002</td>
<td>0.04%</td>
<td>21,041</td>
</tr>
<tr>
<td>Libya</td>
<td>66.20</td>
<td>0.17</td>
<td>0.31%</td>
<td>9,022</td>
</tr>
<tr>
<td>Gabon</td>
<td>10.20</td>
<td>0.106</td>
<td>1.04%</td>
<td>6,856</td>
</tr>
<tr>
<td>Botswana</td>
<td>11.90</td>
<td>0.372</td>
<td>3.905</td>
<td>6,187</td>
</tr>
<tr>
<td>Mauritius</td>
<td>7.40</td>
<td>0.32</td>
<td>4.93%</td>
<td>5,686</td>
</tr>
<tr>
<td>South Africa</td>
<td>282.00</td>
<td>24.678</td>
<td>8.75%</td>
<td>5,372</td>
</tr>
<tr>
<td>Algeria</td>
<td>134.00</td>
<td>0.776</td>
<td>0.59%</td>
<td>3,881</td>
</tr>
<tr>
<td>Tunisia</td>
<td>35.00</td>
<td>0.68</td>
<td>1.94%</td>
<td>3,410</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>1.60</td>
<td>0.022</td>
<td>1.38%</td>
<td>2,919</td>
</tr>
<tr>
<td>Namibia</td>
<td>6.60</td>
<td>0.454</td>
<td>7.96%</td>
<td>2,842</td>
</tr>
</tbody>
</table>
12.4.2 Insurance penetration very low in Africa

a) Africa has only 1.7% of the world’s insurance premiums
b) Asset protection and life insurance low in priority
c) Top priorities: food, shelter, clothing, medicine, provision for funerals, education
d) Asset ownership low or assets low in value
e) Existing insurance products designed for commercial and higher income groups
f) Experience of the product may have been poor (repudiated claims, complexity, policy language or just bad service)
g) Cultural inhibitions
h) depletion of specialised insurance products (agriculture, catastrophe risk, micro-insurance)
i) Lack of reliable mortality tables and proper framework for life insurance products
j) High friction costs in the value chain: premium collection, claims handling, large number of policyholders against low premium volumes
k) Inadequacy of ICT infrastructure
l) Inadequate financial capacity
m) Critical need for expertise and capacity building for human resources
n) Urgent need to strengthen insurance regulatory authorities
o) Urgent need to harmonise laws in face of cross border investments/transactions.

12.4.3 Competition to Insurance Solutions – Coping

a) Self-insurance
b) Extended family support especially in rural areas
c) Borrowing from relatives, employers and even money lenders
d) Looking for alternative “livelihood” opportunities
e) Distress selling of assets like livestock and other property
f) Distress migration - to urban areas or even other countries

12.4.4 Challenges of Access to Insurance Services in Africa

Framing the Challenges

<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>0</td>
<td>0.0 1.0 2.0 3.0 4.0 5.0 6.0</td>
</tr>
<tr>
<td>Word</td>
<td>World</td>
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<tr>
<td>North America</td>
<td>North America</td>
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<tr>
<td>Western Europe</td>
<td>Western Europe</td>
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<tr>
<td>Japan/US/NZ</td>
<td>Japan/US/NZ</td>
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<tr>
<td>Emerging Asia</td>
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<tr>
<td>Eastern Europe</td>
<td>Eastern Europe</td>
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<tr>
<td>Latin America</td>
<td>Latin America</td>
</tr>
<tr>
<td>Africa</td>
<td>Africa</td>
</tr>
</tbody>
</table>

Non-life: Light blue; Life: Light orange

Low per-capita income and market penetration
12.4.5 Actuaries and Insurance in Africa

a) Limited statutory roles in life insurance  
b) Role currently virtually non-existent in P&C  
c) Challenges of data and reliable statistics  
d) Lack of regulatory appreciation of actuarial roles  
e) Lack of industry appreciation of actuarial roles  
f) Very few in-house actuaries or actuarial departments in insurance companies  
g) Actuarial functions outsourced to consulting firms, often overseas firms.

12.4.6 But change is happening!

a) Review of insurance legislation in several countries  
b) Implementation or risk based supervision and capital requirements  
c) Increasing capital requirements encouraging consolidation and hence increasing ability to have in-house actuarial expertise  
d) More actuaries placed in insurance companies will help to increase awareness and demonstrate need  
e) Growing regulatory appreciation of need for actuaries to protect financial consumer and against insurance insolvencies  
f) Mortality studies in Kenya and in progress in W Africa  
g) Statutory P&C actuarial role in Nigeria and Tanzania and being motivated in Kenya  
h) Insurance demand rising from low income groups, growing middle class, emerging enterprises and infrastructure projects  

12.4.7 A word on micro-insurance

a) Provision of cover to low income groups  
b) Means of reaching informal sector  
c) Area of potential growth  
d) But micro-insurance not just scaled down version of regular insurance  
e) Requires product, delivery channels, pricing, processes to be completely reengineered to meet characteristics and preference of “bottom of the pyramid”  
f) Needs different mindset and thinking outside the box.

12.5 Pensions and Social Security

12.5.1 Current Systems in Africa

a) Mandatory provident funds targeting formal sector  
   › e.g. Kenya, Uganda  

b) Social insurance pension schemes  
   › e.g. Ghana, Tanzania, Rwanda, Zambia  
   › Typically partially funded  

c) Universal basic pensions  
   › e.g. S Africa, Botswana, Namibia, Lesotho, Mauritius, Senegal, Cape Verde
d) Public service (civil servants, teachers, etc) employees schemes – PAYG unfunded (currently Kenya, Uganda), funded systems (SA, Botswana) or partially funded (Tanzania).

e) Occupational schemes – typically found in countries that were former British colonies. Currently vibrant occupational sectors in S Africa, Kenya, Namibia, Botswana.

12.5.2 Social Security Contribution Rates


12.5.3 Key Challenges

a) Coverage <10% of existing systems, much smaller in most countries
   › Rural populations, but increasing urbanisation too
   › Wider rural urban disparities – rural persons poorer than urban counterparts
   › Small size of formal economy, huge informal economy
   › Formal sector static or declining
   › Low levels of disposal income

b) More pressing other needs, particularly housing, education and health.

c) Hence priority to making pension systems more relevant to socio-economic needs

d) High levels of unemployment

e) State schemes – concerns over
   › Sustainability of existing schemes, particularly public service schemes
   › Governance and political interference
   › Poor investments
   › Poor services and high expenses
   › Extent of State role
12.5.4 Need for Pension Reform in Africa

a) Alleviating poverty and elderly poverty
b) Breakdowns of traditional forms of social security
c) Increasing coverage
d) Increasing adequacy
e) Addressing governance issues
f) Several countries have reformed their systems in the last decade and several in progress
g) Reforms covering national schemes, civil service schemes and creating regulatory oversights
h) Trend to DC in occupational plans reducing traditional DB actuarial demand
i) But demand for actuaries in social security schemes
j) Limited actuarial input in DC plan designs and management

12.5.5 Some Recent Reform Initiatives

a) Kenya
   › Regulatory reform
   › Public service pension reforms
   › Ongoing NSSF reforms

b) Tanzania
   › Conversion of provident fund to social insurance
   › Legislation for establishment of regulatory authority
   › Dominant state schemes.

c) Uganda
   › Proposed enactment of new Act and establishment of regulatory authority
   › Civil service reform and liberalization of NSSF on cards.

d) Rwanda
   › Governance, financial, admin reforms

e) Botswana
   › Civil service conversion to funded DC scheme
   › Universal state pensions.

f) South Africa
Proposed establishment of mandatory national savings fund
Prompted by concerns over governance and costs of existing private sector driven occupational system.

g) Zambia
- Conversion of provident fund to social insurance
- Funding of civil service scheme
- Establishment of regulatory authority

h) Nigeria
- Radical structural reforms to existing system
- Compulsory individual account system to stimulate coverage
- 15% contribution (7.5% by employer, 7.5% by employee)
- Pension payable from 50+; early withdraw if remaining bal 50% of salary
- Employers with 5+ employees required to enrol
- A large proportion of the workforce is in the informal sector
- Estimated participation - 20 million (Independent Newspapers, 2005).

i) Ghana
- Proposed introduction of compulsory limited second pillar
- With some reduction in first pillar compulsory contributions to DB social insurance scheme.

j) Senegal
- Universal pension
- Modest mandatory DC first pillar

12.6 Health Insurance in Africa

a) Few countries on the continent meet WHO minimum per capita annual spend on healthcare
b) 15% of global population, 24% of disease burden and 1% of THE
c) Despite billions of spend, 50% of THE is financed out-of-pocket
d) Poor infrastructure & personnel capability with attendant delivery issues
e) Project $25-30 billion investment over the next decade
f) Improving economic outlook – more demand – with expectation to double to $35 billion by 2016.

12.6.1 Health Care Reforms

a) Many Governments looking at introducing social health insurance schemes
b) Actuarial input in such plans as well as private medical insurance and dovetailing with state schemes

12.7 Wider Fields

a) Mixed experience
b) But Africa can position actuarial profession better as career with much wider application and value and hence appeal
12.7.1  **The Actuary in Africa must be:**

- a) Versatile
- b) Able to apply actuarial thinking and skill as opposed to being fixated on actuarial function
- c) Able to think outside of box and challenge tradition and preconceived ideas
- d) Able to design home-grown and African solutions!
- e) Able to communicate and engage stakeholders and hold his/her ground!
- f) Patient! Persistent!
- g) Personal experience

12.7.2  **Help and Support Needed**

- a) Supporting and facilitating creation of national associations
- b) Marketing of the actuarial profession with emphasis on its relevance to Africa
- c) Promoting actuarial education of African actuaries
- d) Establishing and maintaining high standards of professional conduct
- e) Engaging regulatory authorities and industry
13. Development of Actuarial Education / Profession in West Africa:  
*By Dr. Femi Oyetunji, Continental Reinsurance*

13.1 Introduction  
a) Over the decade, the relevance of the actuarial profession has been on the increase albeit at a slow pace in West Africa.  
b) Post 2005, IAA streamlined the route to being a fully qualified actuary through its Education Syllabus and Guidelines.  
c) However actuarial training in Anglophone and Francophone West Africa are different.  
d) Most Actuaries in Anglophone West Africa belong to the Institute of Actuaries.  
e) The number of actuaries is not just enough to meet the needs of the region.  
f) Currently there are 5 fellows of the Institute of actuaries in Nigeria, 4 associates and 1 fellow of the society of Actuaries in Ghana.  
g) In Francophone West Africa there are 22 actuaries in Cote d'Ivoire, 3 in Benin, 4 in Senegal, 2 in Mali, 1 in Togo.  
h) Actuarial firms which could have helped in the development of the profession are few. For example in Nigeria there are just 2 main actuarial consultancies, 1 in Ghana and 3 in Cote d'Ivoire.  
i) Actuaries in West Africa are predominantly involved in area of:  
   ▶ Life Insurance  
   ▶ Pensions and Employee Benefits  
   ▶ Involvement in areas like General Insurance and Health Insurance is still at a very low level.  
   ▶ Hardly any involvement in investment or asset management consulting.

13.2 Recent Developments  
a) Life Insurance Companies in Ghana and Nigeria required to carry out valuation every three years  
b) They are also required to have an Actuarial Department  
c) Valuation for non-life is not statutory  
d) There is a general move towards risk based supervision  
e) Major shift from defined benefits to defined contribution pension schemes.

13.3 Actuarial Associations  
a) There are a number of actuarial associations in the region whose aim is to help in developing the profession in their respective countries:  
   ▶ The Nigerian Actuarial Association is the umbrella body for actuaries in Nigeria  
   ▶ Actuarial Society of Ghana is responsible for actuaries in Ghana  
   ▶ In Côte d'Ivoire, Institut des Actuaires de Côte d'Ivoire co-ordinates the activities of actuaries  
  
b) These associations try to create awareness for the profession and also encourage young actuaries by organising:  
   ▶ Regular Meetings  
   ▶ Regular Symposia in Universities  
   ▶ Public Lectures  
   ▶ In Ghana, some members of the Actuarial Society provide support by teaching actuarial science courses at the universities.
13.4 Training/Education

a) Educational Institutions offering Actuarial Science:
   - 3 in Nigeria, 2 in Ghana, 2 in Cote d’Ivoire and 1 in Benin
   - Students interested in the actuarial profession still do not have any exemptions from the Institute or Society of Actuaries exams.
   - Actuarial Companies in Nigeria usually give support to employees in terms of study leave, exam fees/subscription
   - This has encouraged a number of young aspiring actuaries as the education costs are covered by the company.

13.5 Slow Pace of Development

a) Paucity of qualified actuarial resources
b) Cost of requisite resources
c) Lack of presence of global firms in the region
d) Poor foundation in Mathematics

13.6 Way Forward

a) The Universities should improve curriculum to meet Institute Standards
b) Qualified Actuaries e.g. through Actuaries without Borders should be encouraged to come to the region to lecture in the Universities on a rotational basis
c) Strengthening of mathematics at the Higher School Level
d) Gifted students with potentials should be identified and assistance should be provided for education and training (e.g. Scholarships, exchange Programs etc.)
e) Attract global actuarial firms to the region to upscale local skills and postings within the Group.

13.7 Prospects of the Profession in West Africa

a) Large Population should deepen the life products which will in turn increase demand for life actuaries.
b) Legislation shifting towards risk based supervision.
c) Pool of Investment
d) Increased demand and hence flow of actuaries into the region
e) In Nigeria there are currently 5 practicing actuaries compared to 2 in 2009.
14. Mentorship Efforts in Africa: By Lusani Mulaudzi, President of ASABA

14.1 Background of ASABA
The Association of South African Black Actuaries was established in 2005, with the aim of addressing lack of actuarial skills amongst previously disadvantaged communities. ASABA is a key partner of ASSA in its Actuarial Transformation Charter. There have been a number of programs established since inception:

- Mentorship program
- Vacation work program
- Schools outreach program
- Asaba in dialogue
- Actuarial Women’s program
- International Mentorship program

14.2 Mentorship Program
a) The program is currently made up of 121 mentors and 125 mentees
b) Two full registered University Chapters
c) Mentorship Sessions held 3 times a year
d) Variety of Speakers—actuaries and professional trainers
e) Notable speakers—e.g. Dr. Mamphele Ramphele
f) Inspire and equip our students
g) Topics—Time Management, Interview Skills and Communication
h) Opportunity for mentors to meet mentees
i) Fully funded by Liberty life
j) Dedicated Consultant—project manager
k) 8 actuarial professionals—volunteers on committees—monthly meetings

14.3 Vacation Work Program
a) Aims to place students with actuarial employers on a short term basis
b) Placements are done twice a year, in June and December
c) 2010 placement of around 12 students per instalment
d) 2011 placement of around 22 students per instalment
e) Placement criteria—quality of results—no of actuarial subjects passed
f) Valuable exposure to actuarial work environments
g) Fully funded by Sanlam life.

14.4 International Mentorship Program
a) Established after the Diversity Conference held in Cape Town 2010
b) First initiative launched in Tanzania with the Actuarial Society of Tanzania(AST)
c) Second initiative in partnership with the Zimbabwean Actuarial Society
d) Country specific interventions
e) AST—exposure to actuarial work
f) Session held in Dar Es Salaam presented by two SA actuaries
g) One on One mentoring—electronically
h) ZAS—tutoring assistance required
i) Sponsored by the Peter Clarck Memorial Fund
14.5 Diversity Conference

The role of the diversity conference is to:

- a) Enhance the reputation of the profession;
- b) Enhance the marketability of the profession;
- c) Enhance the governance of the profession;
- d) Expand opportunities for talented youth to enter the profession;
- e) Increase the number of people of colour within the profession.

14.5.1 Challenges

- a) Limited resources for societies
- b) Lack of awareness and appreciation of role of actuarial profession
- c) Language barriers
- d) Infrastructure problems in some countries
- e) Lack of volunteers

14.5.2 Opportunities

- a) ASSA education system
- b) Developed societies to assist less developed societies – mentorship, training
- c) Networking amongst professionals

14.6 Conclusion

- a) Developed societies should claim their place
- b) Actuarial Professionals should volunteer their time
- c) Insurance companies should support mentorship efforts
- d) Greater co-ordination is needed
- e) Central full time staff – African actuarial efforts
15. **The Actuary in a world of accelerating change: The challenge of relevance for today’s professional:** *By Themba Gamedze*

In 1986, Ian Griffiths, a Chartered Accountant, described the phenomenon of “Creative Accounting” as follows:

“Every company in the country is fiddling its profits. Every set of published accounts is based on books which have been gently cooked or completely roasted. The figures which are fed twice a year to the investing public have all been changed in order to protect the guilty. It is the biggest con trick since the Trojan horse…In fact this deception is in all perfectly good taste. It is legitimate. It is creative accounting.”

Since that warning salvo, we have had seen the disastrous consequences of what was at the time a very opaque financial reporting regime through scandals involving some very big names such as Enron, WorldCom and Tyco around the turn of the century. More recently we have seen an alarming number of famous brand financial institutions collapsing in the aftermath of the financial crisis of 2008.

The two blogs quoted below, courtesy of the Investor Advisory Group, express a widespread frustration with professionals, both in the public and private sectors, who are regarded as having failed in their responsibility to provide early warning to investors about the disaster that eventually happened. The first blog is symptomatic of the extent of the criticism now being levied by investors and independent commentators at the auditors for these failures, and of regulators, for failing to hold them accountable.

**Blogger Francine McKenna wrote:**

“The public accounting firms and their hundreds of thousands of auditors should be an investor’s first line of independent defence. But these firms turned a blind eye to the excesses, mismanagement, and fraud of executives managing their client firms. The public accounting firms issued clean financial opinions for all of the firms that eventually, most less than a year later, failed, were taken over, or nationalized. And the regulators slept.”

In a recent blog, Tom Slee went so far as to ask, “Are Auditors Becoming Irrelevant?” before commenting as follows:

“Now that we have had time to analyze the financial crisis and the post-mortems are over, one big question remains. Where were the auditors? These highly-paid watchdogs were supposed to be our first line of defence. Fat chance! They continued to reassure shareholders and investors even while we were going over the cliff. Bear Sterns, Carlyle Capital, Thornburg Mortgage, and Lehman Brothers all hit the buffers shortly after receiving clean bills of health…”

However, even after such a damning indictment, the blogger went on to express a very sad reality that recognised the critical role that professionals at their best can play in protecting the public in the following way:

“Where does this leave small investors? Well, I think we have lost another safeguard.”

While the above examples were taken largely from the auditing profession, the growing tide of mistrust is directed at anyone who is regarded as having been in a position to warn the public. In essence, therefore these comments represent a threat to all professionals, particularly those in the financial services.
In attempting to address this overt challenge to our relevance, we must start at the very beginning by asking the fundamental question:

15.1 What is a Profession?

The general consensus is that what we would normally describe as a profession is made up of three essential building blocks.

All professions are established on a foundational framework of theoretical knowledge that underpins the core skill-set of the profession. Ensuring that members of the profession are able to demonstrate a detailed understanding of this material is achieved by means of a formal examination system controlled by the profession.

In the particular case of the Actuarial Society of South Africa, for example, this assessment process involves testing in at least 18 examination subjects covering a wide variety of both technical and non-technical content. These range from Finance, Statistical methods, Actuarial Risk Management, Communication skills, Financial Economics, Model development and financial reporting, among many others. Ultimately there is also a requirement to demonstrate an in-depth understanding of at least two areas of actuarial practice, as well as mastery over one of these.

As an aside, I personally am completely convinced that the breadth of this training provides actuaries with the best possible background among the numerate professionals from which to expand their work into non-traditional, particularly non-financial services work.

On top of this foundational platform of theoretical knowledge, a profession requires its trainees to demonstrate the acquisition of the defining core practical skill-set of the profession as it is applied in the areas of work in which the profession has established itself. In addition, there is now very wide recognition that professionals also need to ensure that their knowledge and experience is kept up to date over the years through a commitment to Continuing Professional Development. This really is the only way that we are able, as a profession, to ensure that the work of our members will continue to display the highest levels of competency in their areas of practice.

In this context, my own personal view is that the actuarial skill-set provides us with an unparalleled capability in the area of comprehensive model design. Our training in this area gives us an instinctive compulsion to identify all affected stakeholders with the aim of establishing a cohesive system in which all participants win more than they lose. This firm technical grounding, together with critical communication skills that accompany it; allow us to provide decision-makers with robust frameworks to support their decision-making in a very wide range of commercial, macro-economic and social challenges.

Finally, as members of a profession we bind ourselves to an ethical code of conduct through which we make a firm commitment not to abuse the position of trust we enjoy by virtue of our specialized training and the skills we have acquired. That code of conduct is enforced upon the members of a profession through a disciplinary process that is regarded, in the case of the Actuarial Society at least, as having two central objectives. The most important of these is to provide a practical way to protect the general public from possible exploitation by our members in terms of potentially harmful activities that are not covered in the legislative framework. A sound disciplinary process also has the effect of safeguarding the reputation of the profession by ensuring that offenders are brought to book.
In broad terms there can be no doubt that society generally affords all professionals, a position of privilege in terms of our social and economic status. However, that status can certainly not be taken for granted and, as noted at the very beginning, is in fact coming under increasing pressure. It is therefore becoming critically important for us as professionals in general and actuaries in particular to challenge ourselves vigorously about the value we provide society. In doing so, we shall find ourselves already on the road towards retaining and extending the relevance of our contribution, even in an environment of historically unprecedented change.

15.2 So, how do we retain our relevance?

In his major work, first published in 1970, the futurist Alvin Toffler wrote a book entitled “Future Shock” in which he demonstrated very well that with the advent of the technological age we had not merely been thrust into a world in which change had become endemic. Toffler convincingly cited a number of different aspects of global society that proved his thesis that, not only had the pace of change increased dramatically, the rate of that change was itself on an increasing trend. He described this very sensibly as accelerating change.

While this concept of almost constant significant change was considered by some at the time to be somewhat extreme, it is now unambiguously regarded as the norm. We have even encapsulated this post-industrial paradigm in the following rather Zen expression:

15.3 “Change is the only constant.”

It is not difficult to accept the concept that the effect of change is just a redefinition of the rules of engagement resulting merely in a reshuffling of the winners and losers within any competitive environment. However, accelerating change introduces the entirely new phenomenon of structural instability.

A perfect example of this phenomenon is extremely obvious in the corporate governance environment. If you were a director of a life assurance company in 1990, the year of Mandela’s release from prison, you would have had to comply with at most 5 pieces of legislation in meeting your fiduciary responsibilities. Today, just 22 years later and a significantly shorter time than Madiba spent in prison, a responsible director is required to be aware of the provisions of well over 1 000 different pieces of legislation. This situation is not at all unique to business because the same degree of increased complexity and environmental change can be detected in more or less every single sphere of human activity.

But, as we are often told on television, “That’s not all…”

In addition to this already unsettling background of increasingly rapid change that drives significant socio-economic adjustments, we have the superimposed effect of globalisation which forces these adjustments to become very widespread indeed.

Technology compounds this effect by transmitting and solidifying these changes with ever increasing speed. A major implication of such an environment is the ease with which today’s innovation can become tomorrow’s commodity.

There is no doubt therefore that the key to the future success of our profession lies in developing an ability to anticipate, or at least to respond rapidly.
In this particular regard, as the Actuarial Society of South Africa, we have decided to take a good look at ourselves this year. We began by asking our members to provide us with candid feedback about how well or poorly we were meeting their needs. I am very pleased to be able to tell you how useful we have found that feedback, which we are now already beginning to incorporate into our strategic planning.

We then approached our key external stakeholders to assess their perceptions about both the Actuarial Society and the actuarial profession itself. Although we have a way to go towards finalising that process, we recently received some very illuminating initial feedback from some of these major stakeholders. The most significant comment made by this group related to the risk our profession faces of becoming stereotyped simply as financial geeks.

We clearly need to avoid falling into the trap of overemphasizing our technical capabilities in comparison to our strong training and skills development in a number of non-technical areas. I can best summarise this as a challenge for us to make better use of the fact that, in addition to the well-recognised depth of our technical training, there is significant breadth involved in that preparation as well. As a result of this fairly unique balance among the numerate professions, we are well able to play a role as agile professionals capable of adding value in a number of different areas of work, both in business and in the public sector.

In the context of this framework then, it becomes clear that one of the critical success factors for retaining our relevance as professionals is the extent to which we are able to ride the successive waves of change, no matter how big they are or how quickly they come.

15.4 But how responsive to change are we really?

If a profession is indeed defined by the combination of the three major ingredients already mentioned before, of technical training; core skills and an enforced code of conduct, then it is important for the relative balance of these components to be preserved intact in the aftermath of any major change in the dynamics of business.

Unfortunately, the ease with which we would realistically be able to respond to change is not uniform across these different components.

It does not take rocket science to conclude that while it is fairly easy to change the menu of the technical foundational training, it is somewhat more of a challenge for a profession to develop new practical skills. However, even that difficulty pales into relative insignificance in comparison with the deviously challenging task of realigning the code of conduct to ensure that it is still relevant and effective under rapidly changing circumstances.

Unfortunately we now exist in an environment in which the rapidity of change can affect the dynamics of business so quickly that we may not even have considered the ethical issues that arise with those changes by the time the new paradigm is already in effect. However, as difficult as resolving these emerging issues may be, it is critical for us to accept that unless we act quickly in this regard, we will find ourselves being subjected increasingly to rules imposed upon us by others.

I believe that the secret to retaining a substantial hold on our future destiny as a profession lies in comments made over 40 years ago by one of our own - a British actuary called Frank Redington, born over 100 years ago, and who left us with what I see as a professional challenge.
15.5 So what is Redington’s challenge to us?

Frank Redington was a prolific writer and amazing intellect who demonstrated enormous foresight. His role in the development of the profession was recognised in 2003 when the readership of “The Actuary” magazine voted him in as “the greatest British actuary ever”. Way back in 1968, Redington wrote a paper in which he made the following rather cryptic statement:

“The actuary who is only an actuary is not an actuary. There is surely a very significant lesson in this remark. It is not difficult to detect a call for us as actuaries to make a commitment to challenge ourselves constantly to add greater and greater value to any task that we do. For me, this stands at the very heart of the quest for relevance, since it allows no room whatsoever for complacency of any kind. Let us never forget that we exist as a viable community only because society allows us to.

The fact that Redington issued his warning so long ago shows us that the issue of relevance has been on our profession’s radar screen for quite a while. However, it is essentially in our time of rapid change that I believe that we will be forced to deal directly with the issue of relevance as it has now become central to our long term survival as a profession.

It is no longer sufficient for us to concentrate only on keeping our house in order, as important as that undoubtedly is. I believe that the time has come for us to get actively involved in the big national debates from the very beginning. This will require us to examine very critically some of the statements we make from time to time, in the context of the development of national policy. The one I am particularly concerned about is:

15.6 “Let’s wait until there is more clarity on the subject”.

While I of course concede fully this is sometimes precisely the right thing to do, I find that we often use it to hide an inappropriately excessive reticence. The practical effect of this professional shyness is that the process of policy development around many of these big issues is being robbed of a significant level of the well-balanced expertise that we could have contributed. That input could have resulted either in an improved strategy or a more optimal implementation process or even both. Should we not rather aspire to participating in the process of developing the ground rules instead of waiting for others to set the agenda for us?

In closing then, meeting the challenge of ensuring the continued societal relevance for our profession calls for a proactive approach to the problems faced by our society. It can certainly not be achieved if we continually insist on taking a reactive stance in the face of change or are seen to be overly defensive.

Our engagement in this regard needs to be in societal issues beyond the small enclaves in which we currently happen to be making our living. While it is true that such a proactive approach comes with its own risks, as long as we participate in a positive and supportive attitude, we can expect increased goodwill to be expressed towards our profession. There is no doubt in my own mind that our training and skills equip us excellently for fulfilling the role of problem solvers rather than merely that of being problem staters.

In conclusion therefore, I believe that as we focus more on how things can be made to work rather than on why they cannot work, we shall discover that we have already embarked upon the quest for relevance. That journey surely holds the promise of discovering new areas in which to apply our skills and new ways to consolidate our profession’s place in the mainstream of our society as it evolves, no matter how rapidly.
16. Challenges Facing the Actuarial Profession in Africa: The Case of Ghana: By Ernest Amartey-Vondee

16.1 Introduction

The actuarial profession has provided skills for the rapid transformation of the financial services sector of many economies. The profession’s origins began with the financial management of life insurance companies, particularly, their solvency and profitability; but actuarial skills applications has extended into many other spheres including government, stock exchange, software development, corporate planning, teaching and research, etc. It is generally observed that, in the developing economies, the availability and development of actuarial skills is faced with a number of challenges. This paper details some of the practical challenges hindering the progress of the actuarial profession in Ghana.

16.2 Ghana: The Country Characteristics

16.2.1 Geography

a) The country is located on the West Coast of Africa, and just north of the Equator. The Greenwich Meridian passes close to the capital city of Accra.
b) It has an Area of 238,538 square kilometres, about the same size as Great Britain.
c) The Climate is tropical, with typical rainy and dry seasons.
d) Accra is the Capital City, with an estimated population of 3 million.

16.2.2 Government

a) Type: Democracy
b) Constitution: Promulgated in 1993 to establish the 4th Republic
c) Executive Authority is vested in the President (with a 4-year term) who is required to appoint more than half of the Ministers of State from Parliament.
d) Legislative functions are vested in a 230-Member Unicameral Parliament, plus Speaker.

16.2.3 The People

a) The Population is 24 million, with a growth rate of 1.8%.
b) Religion: Christianity is 70% and Moslem 16%, the rest being traditional or none.
c) Workforce: 11.1 million, with about 50% in agriculture and fishing.
d) Health: Life Expectancy is 62 years for women and 60 years for men, infant mortality is 48.6/1000
e) Education: 9 years basic and compulsory, literacy is 58%.
f) Official Language: English

16.2.4 The Economy

a) Per Capita GDP (2010): US$ 1,300
b) Inflation Rate (Average 2010): 10.9%
c) Natural Resources: Gold, diamonds, bauxite, manganese, timber, oil
d) Agriculture: Cocoa, wood products, pineapples
e) Major Trading Partners: UK, USA, France, China, India, Nigeria, Cote d’Ivoire
16.3 The State of the Actuarial Profession

16.3.1 Actuarial Society of Ghana (ASG)
   a) ASG is the body which serves as the group organisation for Actuaries and those aspiring to join the profession.
   b) The need to bring together people with the background in Actuarial Science has encouraged its formation in 1996.
   c) The objectives of the ASG include the following:
      ▶ The promotion of knowledge and research in matters relevant to Actuarial Science and its applications
      ▶ To regulate the practice of its Members
      ▶ To promote, uphold and develop the highest standards of professional training, knowledge and conduct among its Members
      ▶ To promote the status of the actuarial profession
      ▶ To provide the impetus for the rapid transformation of the financial services industry
      ▶ To provide a source of reference on actuarial matters for Government, Regulatory Authorities and other interested bodies.

16.3.2 The Membership of the ASG is classified into five categories, namely:
   a) Fellows
   b) Associates
   c) Student
   d) Honorary
   e) Institutional

16.3.3 The qualifications for the various categories are as follows:
   a) A Fellow must attain the status of an Associate of the American Society of Actuaries or the Casualty Actuarial Society, or Associate of the British Institute and Faculty of Actuaries, with at least five years of actuarial responsibility. Alternatively, a Fellow must have Postgraduate qualification in Actuarial Science, with ten years of actuarial responsibility.
   b) An Associate must pass three Core Technical subjects of the British Institute and Faculty of Actuaries including Financial Mathematics, and Probability & Mathematical Statistics, or passed Exam P and FM of the Society of Actuaries or Casualty Actuarial Society. At least, two years of actuarial responsibility is required.
   c) A Student must complete an actuarial or a related course in a recognised University
   d) An Honorary Member is a person not engaged professionally in actuarial practice, but who on account of his/her position can contribute to the objectives of the Society
   e) Institutional Member is a Corporate, admitted in affiliation to the Society.

16.3.4 The distribution of the Membership is as follows:
   a) Fellows - 22
   b) Associates – 8
   c) Students – 66
   d) Honorary – 3
16.3.5 Some of the Fellows of the ASG are as well, Members of the Institute and Faculty of Actuaries, and Society of Actuaries, for instance:

a) Fellows of the Institute of Actuaries – 2  
b) Fellows of the Society of Actuaries – 2  
c) Associates of the Society of Actuaries - 4

16.3.6 Education

a) Individual self-tuition for the professional examinations is the norm.  
b) About 10 to 15 people have, over the past five years, annually written the examinations of the Society of Actuaries. 

c) Postgraduate University qualifications in Actuarial Science is popular, with the favourite Institutions being the following:

- The City University of London, and Herriot Watt University in the UK.  
- The Universities of Waterloo, Manitoba and Western Ontario in Canada.  
- The Universities of Chicago, Connecticut and Nebraska in the USA  
- The Social Security Institute in the Netherlands.

d) Undergraduate Actuarial Science programmes in Ghana are run by the following Universities:

- University of Cape Coast  
- Kwame Nkrumah University of Science and Technology  
- University for Development Studies  
- Pentecost University  
- University of Ghana (partial)

16.3.7 The Challenges

a) There are few qualified/accredited practising actuaries, and as a result few actuarial consulting firms; currently, there is just one such active actuarial firm. Consequently, there are few mentors for the young actuarial professionals.  
b) There is lack of training opportunities for actuarial graduates, and even if they find jobs, there is lack of clear career progression, which is worsened by the ‘poor’ recognition given by industry to locally trained graduates.

c) The Actuarial Society of Ghana (ASG) suffers from inadequate infrastructure such as a Secretariat, Office Staff, Library, etc, and it has no clear long-term strategy for up-scaling, with limited information sharing platform (e.g. inactive website) and public relation measures.

d) The ASG’s level of interaction and cooperation with the players in the financial services industry, in particular the insurance companies and the financial Regulators, is weak, and the same applies to the Universities who offer courses in Actuarial Science.
e) The ASG has no standard certification procedures for actuarial practice, and suffers from limited resources to support publicity, advocacy and lobbying.

f) There is absence of both a national statutory provision for actuarial practice and any instruments to enforce legal/policy provisions on actuarial practice.

g) At the University level, the actuarial programmes are generally not aligned to international standards. The Universities are not networked to Industry, so no formal internship/attachment programmes for students, exist with industry.

h) There is inadequate funding, if at all, for the training of lecturers in Actuarial Science, with inadequate reference materials for students, low IT capacities to support students’ training (software applications), etc.

i) The Universities, being academic institutions, do not place much emphasis on professional qualifications, and also, practising in industry is financially more rewarding for the potential lecturers and lecturers, leading to a drift into Industry.

j) There is general lack of strategy in the Universities for the up-scaling of the actuarial science programmes. Most of the lecturers teaching core actuarial courses have little or no industrial experience, and most are not fully qualified actuaries.

k) Due to lack of internship opportunities and limited job opportunities, as well as the difficulty and duration of training for the professional exams, most students consequently give up on the profession. This is worsened by the relative ease of other professional exams.

l) The actuarial students lack clear career orientation, and so only few students take the professional exams after graduation. Students also lack confidence in linking the theory to practice, and have a feel that, the University programmes are too theoretical with little or no exposure to practice. The programmes do not also prepare them for the professional exams.

16.4 The Way Forward

To address some of the Challenges enumerated above, the following steps need consideration and immediate implementation:-

a) There is need to strengthen the Actuarial Society of Ghana, with the provision of adequate infrastructure and personnel, among others.

b) There must be a strong and effective collaboration between the ASG, Academia, Industry and the Financial Services Regulators for the development and promotion of the actuarial profession.

c) The International Actuarial Association can offer support in the teaching and development of the actuarial programmes at the Universities and in the writing of the professional examinations.

d) Strong collaborative links must be developed and established with the older professional Actuarial bodies.

e) There must be increased funding for tertiary and actuarial education with greater provision of infrastructure like libraries, textbooks, etc.

f) There must be appropriate programmes for internships, practical training, etc., coupled with greater publicity and public education.
16.5 Conclusion

The details outlined as should provide a basis for the assessment of issues relevant for the development of the actuarial profession in Ghana, and possibly elsewhere.

17.1 Introduction and Background

a) Project entailed an investigation of mortality and morbidity experience of insured lives in Kenya
b) Project undertaken in four phases: July 2005 to July 2007
   - Phase I - mortality experience of individual assured lives
   - Phase II - mortality experience of group assured lives
   - Phase III - study of mortality experience of annuitants
   - Phase IV - study of morbidity (sickness) rates
c) Completed investigations for all 4 phases and released final reports
d) Comments and recommendations from peer review actuaries (Quindiem Consulting Actuaries) incorporated in all our final reports
e) Period of investigation 2001 to 2003 inclusive

17.2 Review of Data Collection Exercise

a) Most onerous task of the mortality study and morbidity study
b) Data collection exercise commenced in July 2005
c) 18 life companies requested to provide individual life assured data and group life data
d) 7 companies requested for annuitants data and 10 for morbidity data
e) Each company provided with a copy of the data required and format for the mortality study
f) Important that all companies participate
g) Exposure data requested
h) Claims data requested
   - Data requested for all death claims notified in the years 2001, 2002, 2003 and 2004
i) ‘Principle of Correspondence’ critical
j) Significant delays in the data collection exercise
k) Main reasons for delays in data collection exercise:
   - Necessary personnel not assigned by insurance companies for the specific purpose of the mortality investigation
   - Data not readily available or accessible from the different insurance companies
   - Some companies still hold data in manual registers
   - Inadequate/ incomplete capture of data records
   - Inconsistencies in the data provided
   - Data submitted in tranches
l) Detailed data checks and validation carried out.
m) A number of significant inconsistencies in data provided by some companies e.g.
   - Inconsistent dates of birth from one year to the next
   - Claims not traceable to exposure data
   - Duplicate lives
   - Missing gender
Report on the 2nd Regional Congress of Actuaries in Africa
Nairobi – Kenya: 3rd – 4th November 2011

- Missing dates of birth and policy issue dates
- Inconsistent policy numbers from year to year
- Missing policyholder names
- Inconsistent data formats from year to year
- Errors in data, particularly dates
- Matured policies and death claims included in part of the in-force data
- Inconsistencies in year on year reconciliation.

n) Concerns on quality of data initially provided
o) Hence, data clean ups undertaken, sought clarifications and aimed to resolve queries
p) Some companies’ data was partially discarded due to inconsistencies
q) Approximations and estimations were necessary as some companies did not capture all data fields required for the investigation e.g. actual day of birth, gender etc
r) Key objective was to utilise as much of the data as possible
s) Considerable delays experienced in the data collection exercise
t) But important to get this step right!
u) Important lessons for next phases of project

17.3 Methodology

Crude mortality rate = \[
\frac{\text{Number of Deaths aged } x}{\text{Total initial exposed to risk at age } x}
\]

a) Key principle to bear in mind – Principle of Correspondence
   - A life will only be included as part of the exposed to risk at age x if and only if were the life to die immediately, then it would be counted as having died aged x

b) Necessary approximations
   - Age nearest birthday used as age label
   - Census approach used to determine crude rates

17.4 Period of Investigation

a) Period selected is 2001-2003
   - Balance between reasonable volumes and exposure period and
   - Ensuring data as recent as possible and homogeneity of experience

b) Other factors
   - Computerization of records by insurers recent and/or not complete in some cases
   - Claims experience for 2004 may not be fully developed or complete and hence exclusion of 2004.

17.5 Graduation of Crude Rates

a) Graduation of crude rates necessary in order to:
   - Produce set of smoothly progressing rates ("smoothness")
Reduce the effect of randomly observed deaths ("goodness of fit")
However need balance to avoid over or under graduation.

b) Compare graduated rates with standard published mortality and morbidity tables commonly in use.

17.6 Individual Lives

17.6.1 Crude Rate Males

17.6.2 Set of Graduated Rates
17.6.3 Comparison of Graduated Rates
17.6.4 Impact of HIV/AIDS

a) Apparent bulge on the graduated rates at around ages 25-50
b) Bulge could be as a result of HIV/AIDS related deaths
c) Analysed rates in order to calculate an estimate of AIDS mortality
d) Used the SA 85-90 (light) table as a base curve to represent non-AIDS mortality
e) Estimation was done using statistical techniques including curve estimation

17.6.5 Female Mortality Rates

a) Female mortality rates expected to be lower than Males’
b) Hence important to provide proportions to be used to obtain female rates from male rates
c) To do this we calculated age related proportions from the crude rates
d) The following were the derived proportions:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Female Mortality as a proportion of male mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-70</td>
<td>70%</td>
</tr>
<tr>
<td>70-90</td>
<td>(age/100)%</td>
</tr>
<tr>
<td>90+</td>
<td>90%</td>
</tr>
</tbody>
</table>
17.7 Group Life

17.7.1 Male Crude Rates

![Crude Rates Chart]

17.7.2 Set of Graduated Rates

![Graduated Rates Vs Crude Rates Chart]
17.7.3 Impact of HIV/AIDS

a) Apparent bulge on the graduated rates at around ages 25-50
b) Bulge could be as a result of AIDS related deaths
c) Analysed rates in order to calculate an estimate of AIDS mortality
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a) Female mortality rates expected to be lower than Males’
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d) The following were the derived proportions:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Female Mortality as a proportion of Male mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-55</td>
<td>80%</td>
</tr>
<tr>
<td>55+</td>
<td>(age/100)%</td>
</tr>
</tbody>
</table>

17.8 Annuitants

17.8.1 Male Crude Rates

Crude Male Rates

![Crude Male Rates Graph](image-url)
17.8.2 Set of Graduated Rates

Crude Rates Vs Graduated Rates

17.8.3 Comparison of Graduated Rates

Comparison
17.8.4 Female Mortality Rates

a) Females data provided was scanty
b) Female mortality rates expected to be lower than Males
c) Hence important to provide proportions to be used to obtain female rates from male rates
d) To do this we calculated age related proportions from the crude rates
e) The following were the derived proportions:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Female Mortality as a proportion of male mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-100</td>
<td>80%</td>
</tr>
<tr>
<td>100+</td>
<td>100%</td>
</tr>
</tbody>
</table>

17.9 Recommendations

a) Mortality studies should be carried out every 5 years
b) Individual lives, group life and annuity rates to be adopted for pricing of insurance products and actuarial valuations of long-term business
c) Adjustments for the effects of HIV AIDS may be necessary
d) Individual life rates are “ultimate rates”. However, “select rates” dependent on policy duration may be derived
e) Insurance companies need to focus greatly on monitoring the standard and quality of the data kept
f) Future morbidity studies need to differentiate between group and individual rates
g) This possible only if companies keep proper records for each class of business
18. An Approach to Risk Based Capital for an African Life Insurer:  
By Moses Mutuli

18.1 Introduction: Motivation and challenges

18.1.1 Motivation for RBC for African Insurers

a) Improvement in risk and capital management
b) Timely intervention by regulator
c) Improved credit rating
d) Improved public confidence in insurance
e) Increasing pool of actuaries

18.1.2 Challenges of implementing RBC

a) Shortage of skilled resources in Africa
b) High costs of implementation
c) Lack of consistent valuation methods in Africa
d) Inadequacies of regulatory authorities in Africa
e) Lack of adequate and complete data
f) Lack of co-operation from insurers

18.2 Current practices and Developments: A look at RBC developments in the world

18.2.1 Current practices

a) Europe – Solvency II
b) UK – Individual Capital Assessment (ICA)
c) South Africa – Capital Adequacy Requirement (CAR)
d) Singapore – Capital Adequacy Ratio (CAR)
e) Malaysia – Capital Adequacy Ratio (CAR)

18.3 A Background to Capital Calculation: Some theoretical aspects of RBC

18.3.1 Capital calculation engine

a) Risk classification and measurement
   - Consider all material risk
   - 95% non-ruin probability over one year

b) Stress test calibration
   - Value at Risk (VaR) vs. Tail-VaR

c) Capital aggregation techniques
   - Correlation method
   - Monte Carlo simulation
   - Risk Geographies
   - Copulas
18.3.2 Correlation method

a) Assumptions
   - Risk drivers – elliptically contoured distribution
   - Firm’s net assets – a linear function of risk drivers

b) Solvency capital requirement (SCR):
   \[ SCR = \sqrt{\sum_i \sum_j Corr_{i,j} \cdot SCR_i \cdot SCR_j} \]
   - \( SCR_i \) – impact of net assets after individual stressing of risk \( i \)
   - \( Corr \) – matrix of correlation between risk factors \( i \) and \( j \)
     - Ensure positive definiteness

c) Major short-comings of correlation method
   - Linear assumption of net assets to risk drivers
   - Non-linearity

18.4 A risk based capital approach: A simplified framework for capital calculation

18.4.1 Asset and liability valuation

a) Asset valuation
   - For realistic valuation – assets at market value

b) Liability valuation – conventional non-profit business
   - Gross premium valuation
   - Best estimates – project future cash flows using realistic assumptions
   - Discount at risk free rate – suitable term government bond

c) Liability valuation – unit-linked
   - Sum of unit and non-unit

d) Allowance for risk margins

18.4.2 Capital Cover Ratio (CCR)

a) CCR = (Capital available/Capital Required) * 100%

b) Capital available (CA): Core capital available to insurer
   - Regulators need to ensure that this is available to meet losses
   - Solvency II – defined as Tier 1, Tier2 and Tier 3 (depending on asset characteristics)

c) Capital Required (CR) consists of five components:
   \[ CR = \max \{ C_1, \sum (C_2 + C_3 + C_4 + C_5) \} \]
   - \( C_1 \) – Surrender value capital requirement
   - \( C_2 \) – Credit risk capital requirement
   - \( C_3 \) – Market risk capital requirement
18.4.2 Schematic representation of RBC framework

![Schematic of RBC framework]

18.4.3 $C_1$ – Surrender value capital requirement

a) Addresses lapse risk in excess of level of reserves
\[ C_1 = \max \{0, \text{Surrender Value of in-force business} - \text{Policy reserves}\} \]

b) For unit-linked – applies if there are guaranteed surrender values that exceed sum of unit and non-unit reserves

18.4.4 $C_2$ – Credit risk capital requirement

a) Aims to mitigate risk of losses from:
   - Asset defaults
   - Inability/unwillingness of counterparty to meet its contractual obligations

\[ C_2 = \sum_i (\text{Exposure}_i \times \text{Credit-risk charge}_i) \]

b) Credit risk charges – example based on SA’s CAR:
18.4.5 \( C_3 \) – Market risk capital requirement

a) Aims to mitigate risks of financial losses from level/volatility of market prices of financial instruments.

b) Market risk will affect both assets and liabilities

c) The following three risks are covered:
   - Equity
   - Property
   - Interest rates

d) Formula to compute market risk capital:

\[
C_3 = (A_3 - A_0) - (L_3 - L_0)
\]

e) For equity and property, capital requirements calculated as:

\[
C_3 = \sum_i \left( Market\ Exposure_i \times Market\ risk\ charge_i \right)
\]

f) Market risk charges:

<table>
<thead>
<tr>
<th>Asset class</th>
<th>Risk charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>53%</td>
</tr>
<tr>
<td>Property</td>
<td>25%</td>
</tr>
</tbody>
</table>

g) Interest rate affects both assets and liabilities

h) Stress interest rate up and down by multiplying risk free rates by \((1+s^{up})\) and \((1+s^{down})\) respectively

i) \( S^{up} \) and \( S^{down} \) examples below:

<table>
<thead>
<tr>
<th>( S^{up} )</th>
<th>( S^{down} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>50%</td>
</tr>
</tbody>
</table>

j) Interest rate capital requirement, \( C_{3,int} \):

\[
C_{3,int} = (A_{3,int} - A_0) - (L_{3,int} - L_0)
\]
k) $A_0, L_0$ – base values of assets and liabilities

l) $A_{3,\text{int}}, L_{3,\text{int}}$ – adjusted assets and liabilities

m) Market risk capital requirement formula:

$$C_3 = \sqrt{\sum \text{Corr}_{Mkt,j} \times C_{3,i} \times C_{3,j}}$$

n) The correlation matrix is based on SA’s SAM QIS1:

<table>
<thead>
<tr>
<th></th>
<th>Interest rate</th>
<th>Equity</th>
<th>Property</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest rate</strong></td>
<td>100%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td>50%</td>
<td>100%</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Property</strong></td>
<td>50%</td>
<td>75%</td>
<td>100%</td>
</tr>
</tbody>
</table>

18.4.6 $C_4$ – Insurance risk capital requirement

a) Addresses the risk of under-estimation of insurance liability

b) The following five risks are covered:
   - Mortality
   - Longevity
   - Morbidity
   - Lapse
   - Expenses

c) Capital requirements for insurance risk is:

$$C_{4,i} = L_{4,i} - L_0$$

d) $L_0$ – base value of liabilities

e) $L_{4,i}$ – adjusted liabilities computed for insurance risk

f) Insurance risk stresses – example based on SA’s SAM QIS1

<table>
<thead>
<tr>
<th>Valuation parameter</th>
<th>Stress factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>15% increase in best estimate rates</td>
</tr>
<tr>
<td>Longevity</td>
<td>20% decrease in best estimate rates</td>
</tr>
<tr>
<td>Morbidity</td>
<td>35% increase in best estimate rates</td>
</tr>
<tr>
<td>Lapse</td>
<td>50% increase/decreases in best estimate rates</td>
</tr>
<tr>
<td>Expenses</td>
<td>10% increase in best estimate rates, and 1% increase in best estimate inflation rate</td>
</tr>
</tbody>
</table>
g) Insurance risk capital requirement formula:

\[ C_4 = \sqrt{\sum \text{CorrLife}_{ij} \times C_{4i} \times C_{4j}} \]

h) The correlation matrix is based on SA's SAM QIS1:

<table>
<thead>
<tr>
<th></th>
<th>Mortality</th>
<th>Longevity</th>
<th>Morbidity</th>
<th>Lapse</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>100%</td>
<td>-25%</td>
<td>25%</td>
<td>0%</td>
<td>25%</td>
</tr>
<tr>
<td>Longevity</td>
<td>-25%</td>
<td>100%</td>
<td>0%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Morbidity</td>
<td>25%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>Lapse</td>
<td>0%</td>
<td>25%</td>
<td>0%</td>
<td>100%</td>
<td>50%</td>
</tr>
<tr>
<td>Expenses</td>
<td>25%</td>
<td>25%</td>
<td>50%</td>
<td>50%</td>
<td>100%</td>
</tr>
</tbody>
</table>

18.4.7 \( C_5 \) – Operational risk capital requirement

a) Aims to mitigate risk of losses from:
   - Inadequate or failed internal processes
   - Personnel and systems
   - External events

b) Formula given as for Solvency II:

\[ C_5 = Min\{0.3 \times CR_{Op}, BOp\} + 0.25 \times Exp_{ul} \]

c) \( Exp_{ul} \) – annual expenses incurred i.r.o. unit-linked business

d) \( CR_{Op} \) – preliminary capital required before allowing OpRisk

e) \( BOp \) – basic operational risk requirement for all business other than unit-linked.

18.5 Illustrative example: A simple non-profit endowment policy

18.5.1 Policy description

a) Non-profit endowment term 35 years
b) Policyholder aged 30 years at valuation date and SA of 1 million
c) Monthly premiums of 4,702
d) Duration in force at valuation is 10 years
e) Investment strategies:
18.5.2 Results of component $C_1$, $C_2$ and $C_5$

a) Component $C_1$ - Surrender risk:
   - Surrender value = 15,000
   - Policy reserves = 19,274
   - $C_1 = \text{Max}\{0, 15,000 - 19,274\} = 0$

b) Component $C_2$ - Credit risk:

<table>
<thead>
<tr>
<th>Asset class</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government bond</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bond AA</td>
<td>29</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>Bond B</td>
<td>43</td>
<td>216</td>
<td>345</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72</td>
<td>235</td>
<td>359</td>
</tr>
</tbody>
</table>

c) Component $C_5 = 188$

18.5.3 Results of component $C_3$ - Market risk
18.5.4 Results of component $C_4$ - Insurance risk

![Capital requirements for Insurance risk](image)

18.5.5 Capital requirements per component

![Capital requirements per component](image)
18.5.6 Analysis of CCR

18.6 Conclusion: Outstanding issues

a) Calibration of parameters and stresses
b) Other life products and non-life business
c) Choice of risk-free rate
d) Treatment of reinsurance
e) Allowance for management actions
f) Other risks - currency risk and catastrophe risk
The discussions focused on relationship with external regulators, mainly insurance regulators and pension regulators. To foster the discussion the question of whether demand for actuarial services should be regulator driven or market driven was posed. It was noted that in some countries there is one financial regulator while in others; there are separate regulators for each section of the financial sector. It was also noted that involving actuaries in the regulation of the various industries that the services are used helps to improve self regulation.

Discussants shared experiences on how actuaries relate with the regulators in their different countries:

19.1 In South Africa, there is a Chief Actuary who works with the Regulator. Same with the UK that has a government actuarial department. For DC schemes, if a fund complies with given regulations at any one time, it may be granted indefinite exemption from actuarial valuations. There is also considerable actuarial participation in the short term (non life) insurance section.

19.2 The Caribbean experience is that it is the accounting profession that drove actuaries into getting involved in short term business as a result of the introduction of IFRS 4, which drove auditors into not providing their opinion if there was no sign off by a actuary.

19.3 In Ghana, the appointed actuary is only required for life business. Non Life reserving is often done by accountants. For life business, only product pricing and valuations require an actuarial sign off. The law does not however require a particular method of valuation. Local companies therefore tend to use Net Premium Valuation while foreign companies, mainly South African use Gross Premium Valuation.

19.4 In Kenya, it is hoped that the New Insurance Bill will recognized the role of actuaries better.

19.5 In Uganda, a new law establishing the Retirement Benefits Authority Act was recently passed and another to liberalise the pension sector is being discussed. These discussion lack an actuarial opinion mainly owing to the fact that the professional is just upcoming in the country.

It was noted that it is important for the regulator to fully understand the role played by and the value addition of an actuary.

In order to effectively engage the regulators, the discussants observed that:

a) Actuaries need to come up with ideas that are developmental in the sector in which they seek effective engagement with the concerned regulators.
b) All countries should have a government actuary as is the case with the UK.
c) Actuaries should get more involved in the legislative processes of their countries through providing actuarial opinions on proposed legislation.
d) Regulators should have respective actuarial associations review principles and standards proposed by International standards setting bodies.
20. **Workshop No. 3: Co-operation between the International Actuarial Bodies and the African Actuarial Associations:**

*Facilitated by Mrs. Mary Wanza Kipkemoi, Strathmore University*

### 20.1 Questions Posed

a) Do we need to realize a Pan-African association? Is there a value propositions?

b) Can we leverage / improve our interactions with IAA?

### 20.2 Baseline Agreements

20.2.1 (Giovanna) Clear need to build cohesion of actuaries in Africa, not so much at a formalized level but at informal personal network level.

20.2.2 There exist a clear value proposition with common problems across the region e.g. need to develop mortality tables and risk capital models.

20.2.3 (Cisca & Renata) Language is not a barrier. ECOWAS was discussed as a case in point of an organization with both French and English speaking members. (Prof. Weke) – further from the Sundeep Raichura’s presentation made in the congress, the opportunities in Africa are not language specific.

20.2.4 There is evidence of strength in building a cohesive multinational association as evidenced by CIMA. (Thierry) the same was evidenced in France that had 4 associations that came together. They now can hold discussions with government and have a stronger voice.

20.2.5 (Craig) A further value proposition is leveraging on efforts in promoting the profession across jurisdictions. There was a feeling that lack of seamless communication could lead to duplicity of effort and learning and improvements may not be shared across.

20.2.6 We need to remain cognizant that though problems appear common across borders, some countries / regions may have unique elements of the same problem. This implies that the value proposition of a strong local association still remains.

20.2.7 Having strong associations at local, regional and Pan-African level will help build “one voice” to further improve interaction and value with IAA.

### 20.3 Challenges

20.3.1 Different levels of maturity of associations e.g. Kenya is a full IAA member, Uganda still not registered and Nigeria at formation and definition stage.

20.3.2 Follow-up / Accountability of workshop recommendations.
20.4 Way forward

20.4.1 (Renata, Uganda delegation) We must first learn to crawl, then we can walk, then we can run. We must therefore nurture member local associations towards achieving IAA membership and then take steps to sub regional and regional associations. Kenya mandated to member East African Community and Côte d’Ivoire mandated to West African neighbour countries. IAA requested to act as a co-ordinator and enabler of the mechanism.

20.4.2 (Craig, Cisca, Tanzania delegation) Develop an interactive web based platform/ telecon to seek building of informal personal level interactions. Tanzania has a running face book page. Actuarial Society of South Africa (AS) may have an adaptable website.

   a) This will address sentiments on using a problem solving need (technical actuarial / training needs) to build informal networks.
   b) This can also be used as a measurable way to assess the will of individual members in growing the associations.

20.4.3 (Renata, Ghana delegation) Need for members to volunteer in making these efforts work and at a local level in strengthening the associations by taking up committee and other work.

20.4.4 Suggestion of a regional secretariat to keep tabs on progress of the above action items and to report in the next congress meeting.
Report on the 2nd Regional Congress of Actuaries in Africa
Nairobi – Kenya: 3rd – 4th November 2011

2ND REGIONAL CONGRESS OF ACTUARIES IN AFRICA
From 2nd to 4th November 2011
NAIROBI - KENYA

Theme: “The Challenges Facing the Actuarial Profession in Africa”

Wednesday, 2nd November 2011

Morning / Afternoon : Arrival of International Delegates
1400 – 1830 hrs : Registration at Crowne Plaza Hotel
1930 hrs : Cocktail Party at the Crowne Plaza Hotel

Thursday, 3rd November 2011

0800 – 0930 hrs : Registration of Local and International Delegates at Crowne Plaza Hotel
0930 – 0945 hrs : Welcome Remarks by Chairman of The Actuarial Society of Kenya (TASK)
Mr. James Otubayi
0945 – 1015 hrs : Opening Ceremony Speech by the Commissioner of Insurance
Mr. Sammy Makove
1015 – 1045 hrs : Tea / Coffee Break
1045 – 1130 hrs : An Introduction to the IAA
Mr. Desmond Smith, President Elect, IAA
1130 – 1215 hrs : International Developments in Actuarial Education
Mr. Christopher Daykin
1215 – 1300 hrs : Challenges of Educating Actuaries in Kenya
Prof. Patrick Welke
1300 – 1400 hrs : Lunch
1400 – 1430 hrs : Actuarial Educators Network and The South African Actuarial Qualification
Ms. Francisca Venter
1430 – 1500 hrs : Professionalism & Actuarial Profession in French Speaking Africa
Ms. Renata De Leers
1500 – 1530 hrs : Organisation de la formation d’actuaires pour l’Afrique francophone— Une coopération
Entre la France, l’Espagne et le Sénégal. (Organization of the Formation of Actuaries for
French speaking Africa. A Collaboration between France, Spain & Senegal)
Mr. Thierry Poincelin
1530 – 1630 hrs : Workshops
 Workshop No. 1: Education of Actuaries in Africa
1630 – 1700 hrs : Plenary session (Workshop Reports, Discussions and wrap up of Day 1)
1700 hrs : Tea / Coffee Break
### Friday, 4th November 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>0830 – 0900 hrs</td>
<td>The Role of the Africa Sub-committee of the IAA</td>
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<tr>
<td></td>
<td><strong>Ms. Giovanna Ferrara</strong></td>
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<tr>
<td>0900 – 0930 hrs</td>
<td>Investment of Insurance Funds in the African Context</td>
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<tr>
<td></td>
<td><strong>Mr. Lambert Obossa</strong></td>
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<tr>
<td>0930 – 1000 hrs</td>
<td>Using Embedded Values to Assess the Value of a Life Insurance Company</td>
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<td><strong>Mr. Craig Falconer</strong></td>
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<td>1000 – 1030 hrs</td>
<td>Development of the Actuarial Education / Profession in the Regions:</td>
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<td></td>
<td>Africa and West Africa;</td>
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<td><strong>Mr. Sundeep Raichura &amp; Dr. Femi Oyetunji</strong></td>
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<tr>
<td>1030 – 1100 hrs</td>
<td>Tea / Coffee Break</td>
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<tr>
<td>1100 – 1130 hrs</td>
<td>Mentorship Efforts in Africa - The Experience of the Association of South African</td>
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<td>Black Actuarial Professionals (ASABA)</td>
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<td><strong>Lusani Mulaudzi (President of ASABA)</strong></td>
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<tr>
<td>1130 – 1200 hrs</td>
<td>The Actuary in a world of accelerating change: The challenge of relevance for today’s</td>
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<td>Professional</td>
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<td><strong>Thembla Gamedze</strong></td>
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<td>1200 – 1230 hrs</td>
<td>Challenges Facing the Actuarial Profession in Africa: The Case of Ghana</td>
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<td><strong>Mr. Ernest Amartey Yondee</strong></td>
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<td>1230 – 1300 hrs</td>
<td>Undertaking a Mortality Study in Africa – The Kenyan Experience</td>
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<td><strong>Mr. James Olubayi</strong></td>
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<tr>
<td>1300 – 1430 hrs</td>
<td>Lunch Break</td>
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<tr>
<td>1430 – 1500 hrs</td>
<td>An approach to Risk Based Capital for African Life Insurers / Lessons from SII or SAM</td>
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<td><strong>Mr. Moses Mutuii</strong></td>
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<tr>
<td>1500 – 1600 hrs</td>
<td>Workshops</td>
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<td>Workshop No. 2: The Actuary and Regulation</td>
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<td>Workshop No. 3: Co-operation between the International Actuarial Bodies and the</td>
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<td>African Actuarial Associations</td>
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<tr>
<td>1600 – 1630 hrs</td>
<td>Tea / Coffee Break</td>
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<tr>
<td>1630 – 1730 hrs</td>
<td>Plenary session (Workshop Reports, Discussions and wrap up of Day 2)</td>
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<tr>
<td>1900 hrs</td>
<td>Closing Dinner at Carnivore</td>
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### Saturday, 5th November 2011

<table>
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<tbody>
<tr>
<td>0900 – 1300 hrs</td>
<td>Game Drive</td>
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<td>Nairobi National Park.</td>
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